

ENGINEER DEPARTMENT, U. S. A.



DETAILED DRAWINGS
OF
DES MOINES RAPIDS, LOCKS AND CANAL
OF THE
MISSISSIPPI RIVER

1872.



OF

Des Moines Rapids Locks & Canal.

OF THE

MISSISSIPPI RIVER.

Made under the immediate direction of

Captain A.H. Burnham,

Corps of Engrs U.S.A.,

BY

O. S. Willey, C. E.

By order of

Col. J.N.Macomb, Corps of Engrs U.S.A.

Sup't of improvement.

1872.

4366

General Dimensions.

Lower Lock.

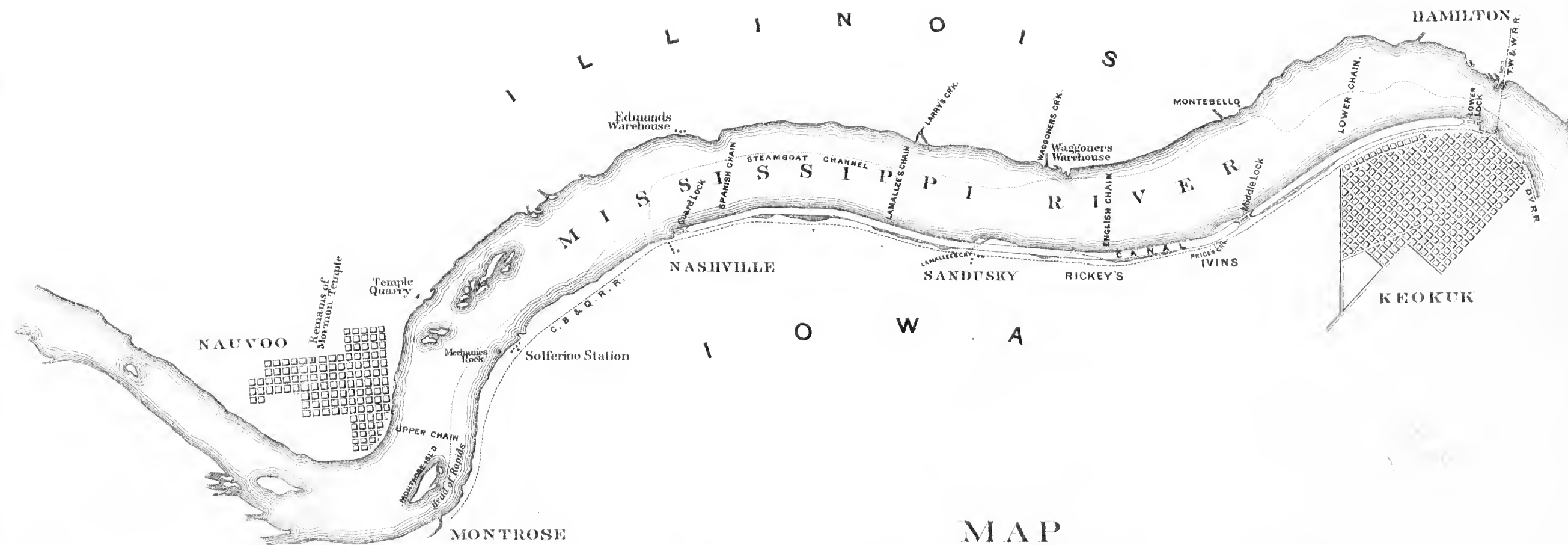
Lock Chamber	350' x 80'
" Wall	Height 23' 5" Base 10' Top 6'
Pier Head	Balir 1" to 1' above Lock bottom 28' 72'
Lower Mitre Sill	Height 1' 8"
Upper " "	" 12' 5"
Through Apex "	15' thick Radius 100'
Angle of " "	20° 44' 30"
Breast Wall	10' wide Height 12' 5"
Radius of Recess	138'
Recess Culverts	3' x 5' 10"
Outside " "	To rise of Arch 7' Rad. Arch 5' thickness Arch 2'
" " "	7' x 7' 6" at upper end 3' 3" x 4' at lower end, length 180'
Culverts through Lock Wall	3' x 3' 8"
Lower Gates	Height 21' 6" length 46'
Upper " "	12' 8" " 46'

Middle Lock

Lock Wall	Height 19' 8"
Lower Gates	length 46' " 17' 9"
Upper " "	" 46 " 9' 8"

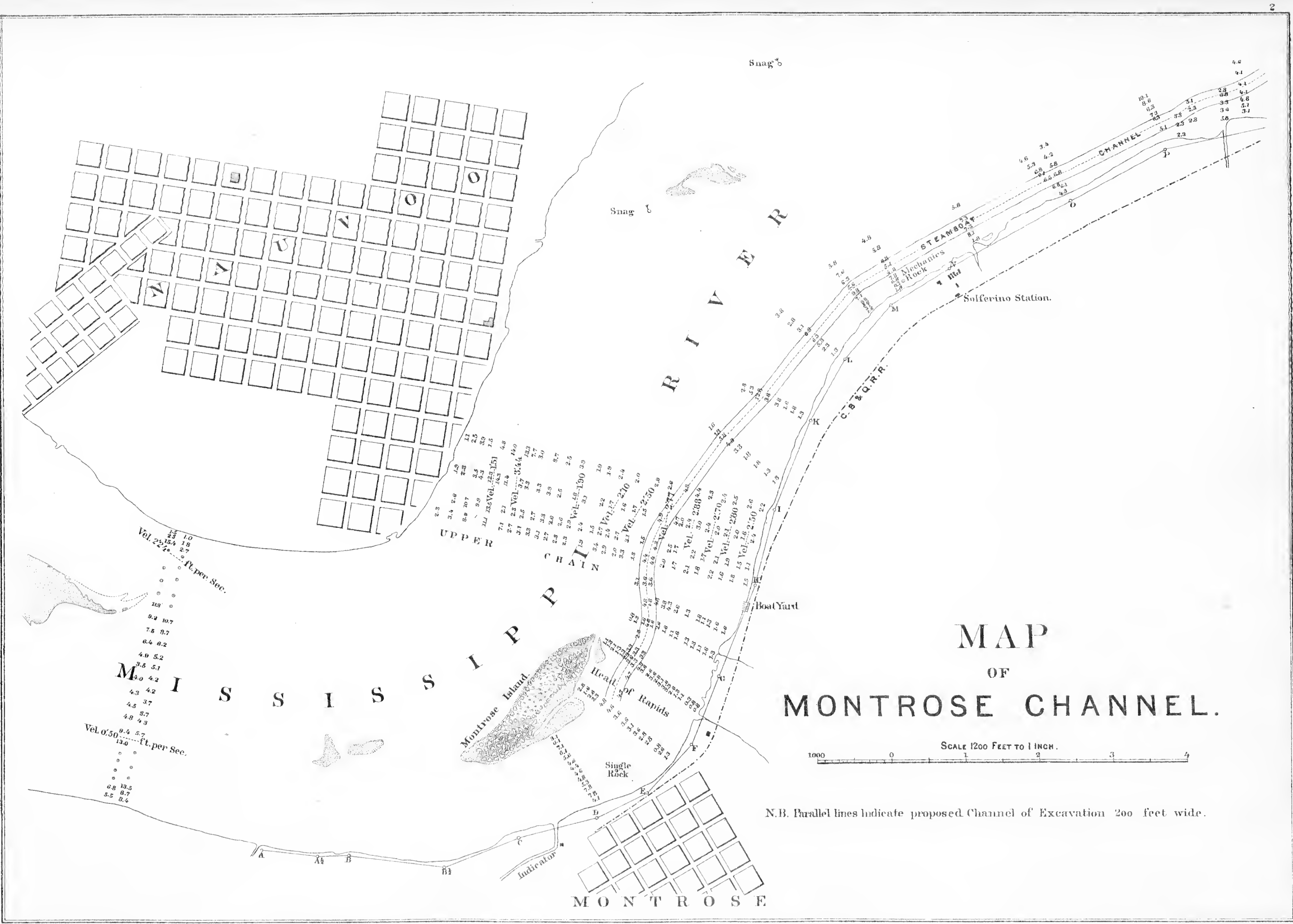
Guard Lock

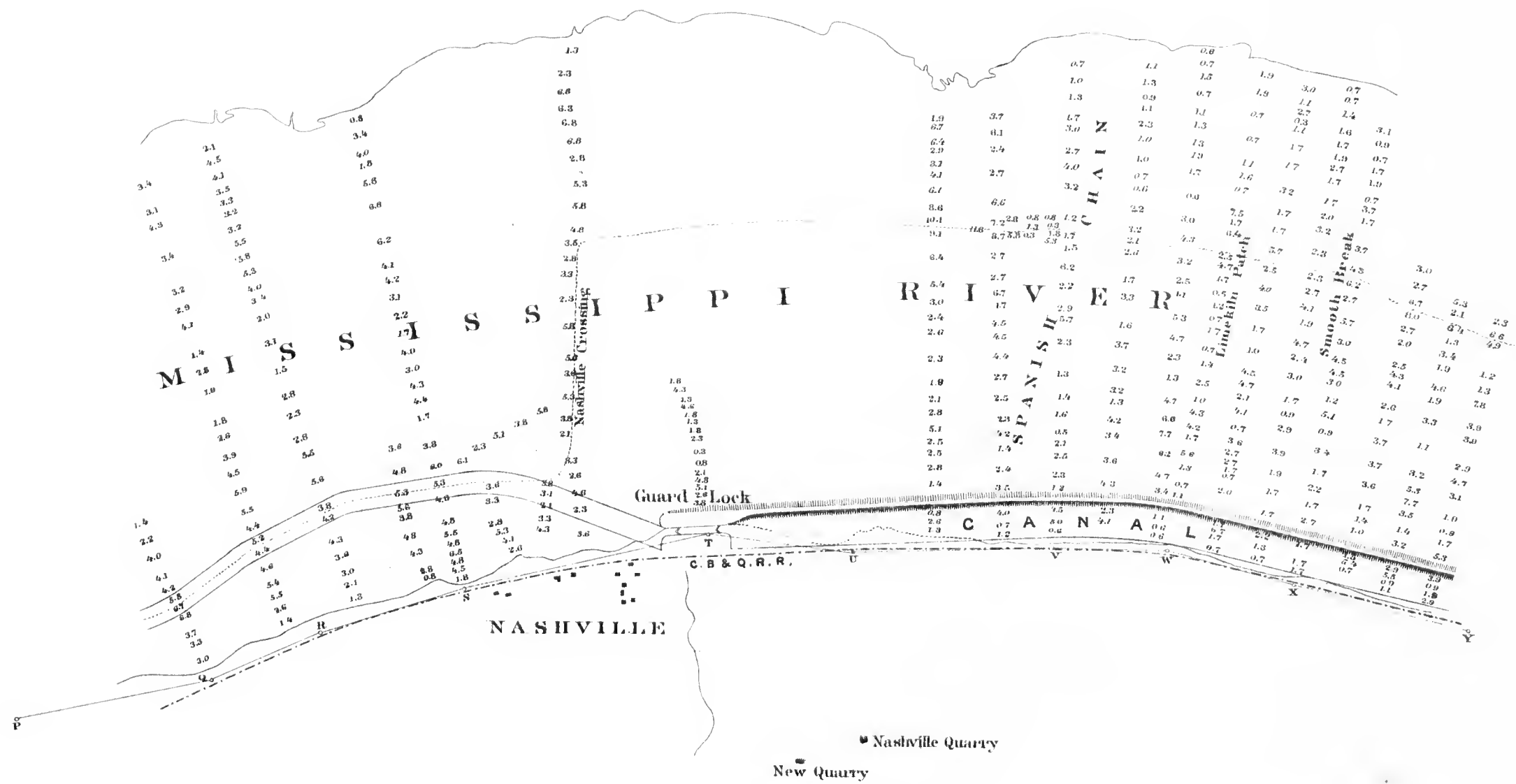
Lock Wall	Height 20' 8"
Lower Gates	length 46' " 16' 0"
Upper " "	" 46 " 19' 0"



MAP
OF THE
DES MOINES RAPIDS
OF THE
MISSISSIPPI RIVER.

SCALE 5400 FEET TO INCH

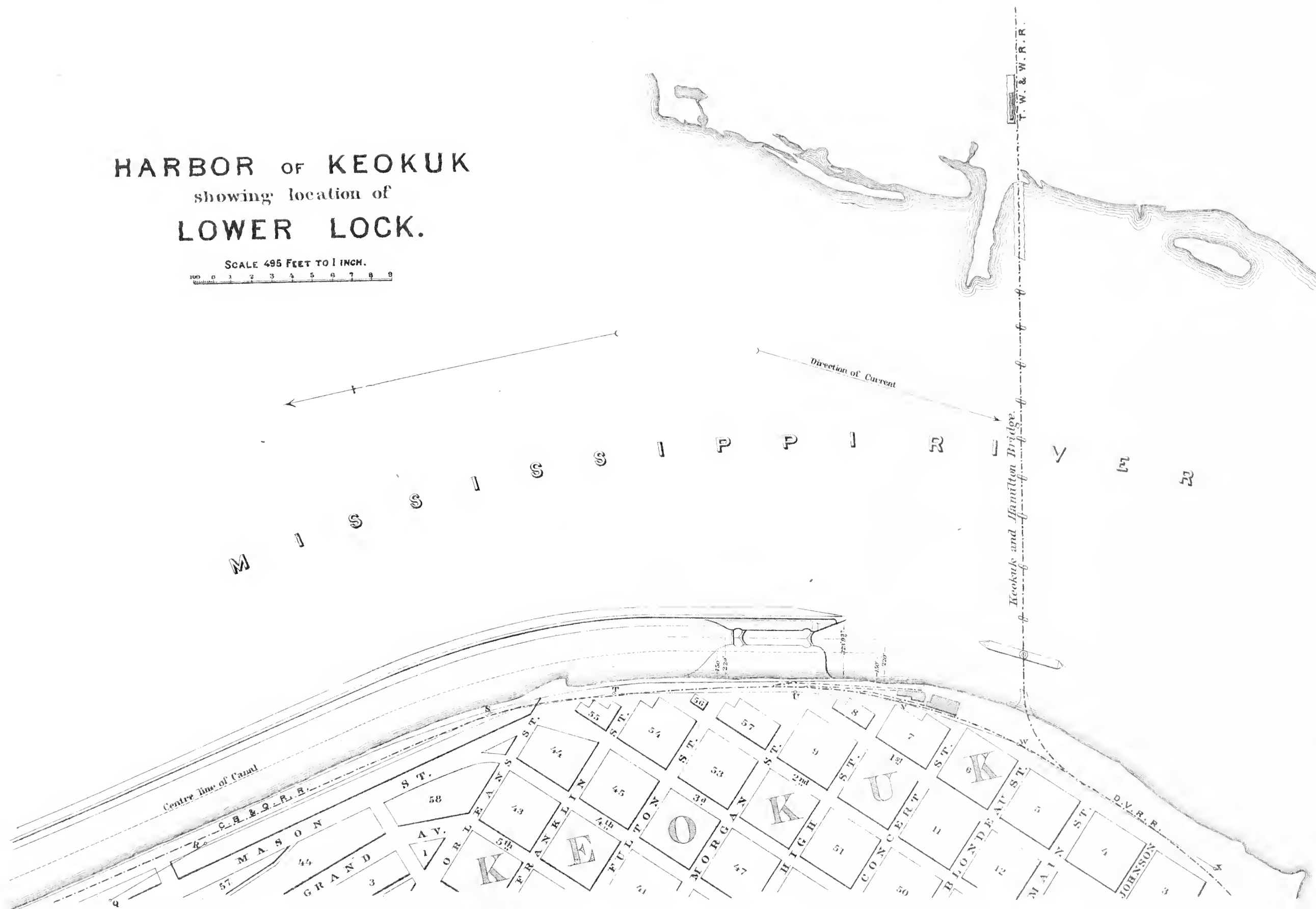




LOCATION OF GUARD LOCK.



SCALE 495 FEET TO 1 INCH.

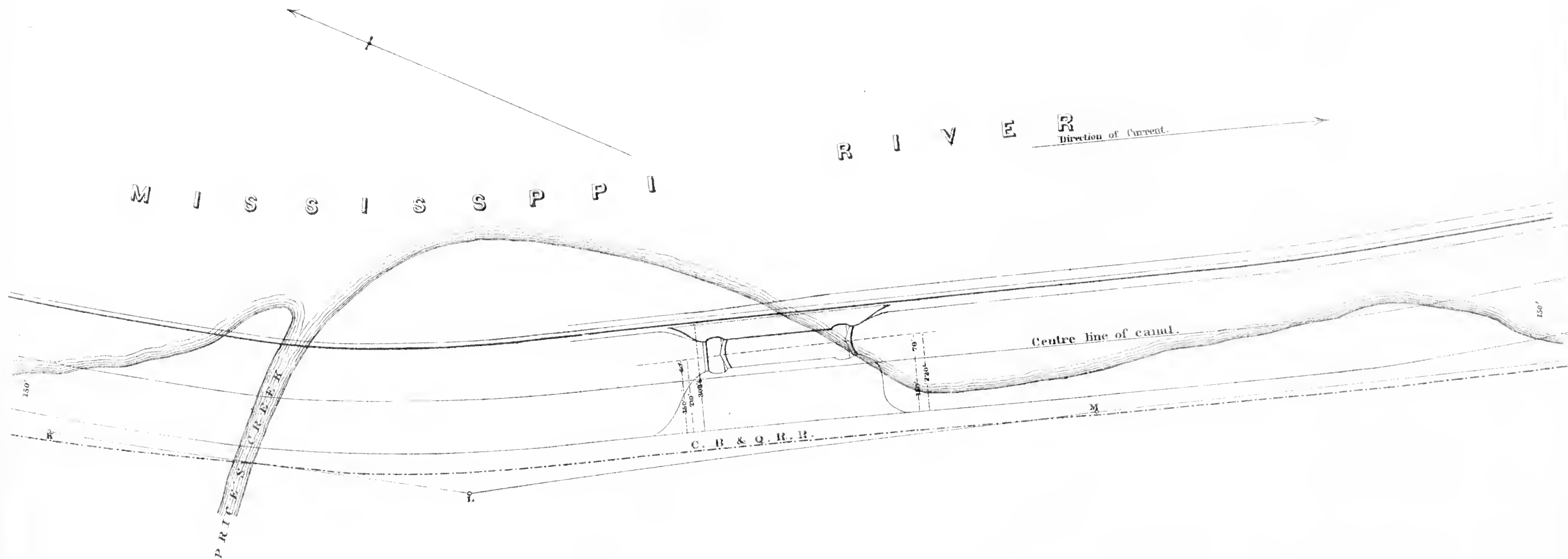


MAP

showing location of

MIDDLE LOCK.

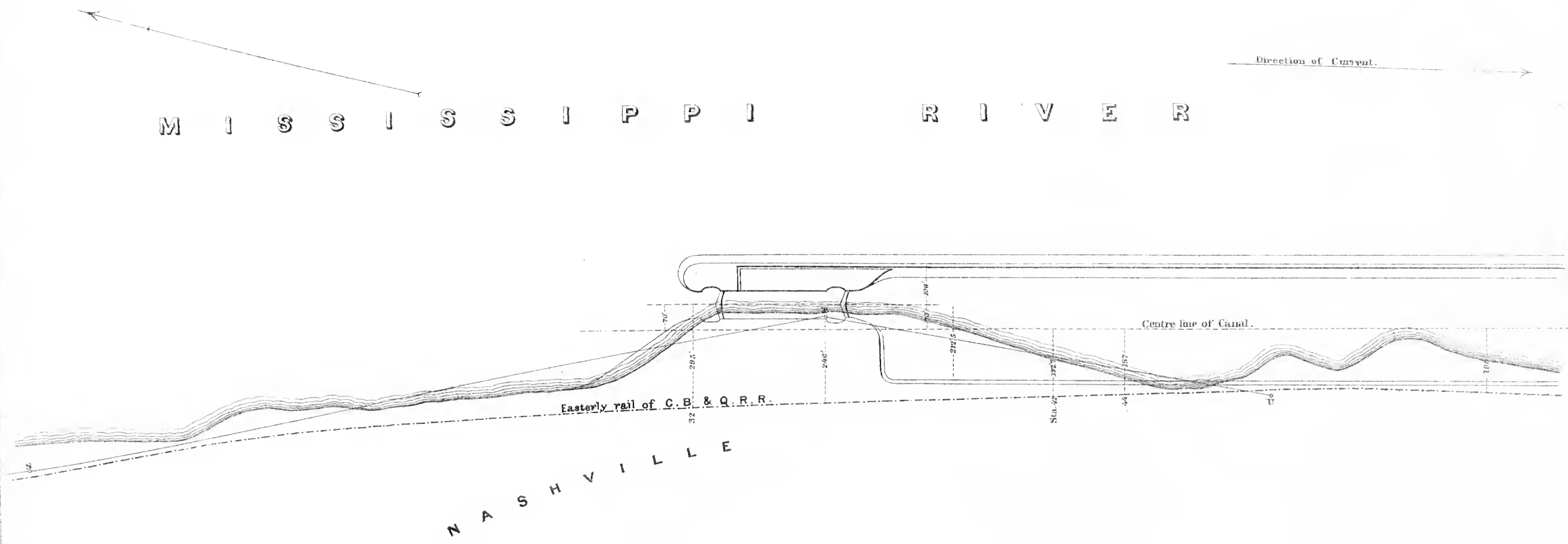

SCALE 300 FEET TO 1 INCH.

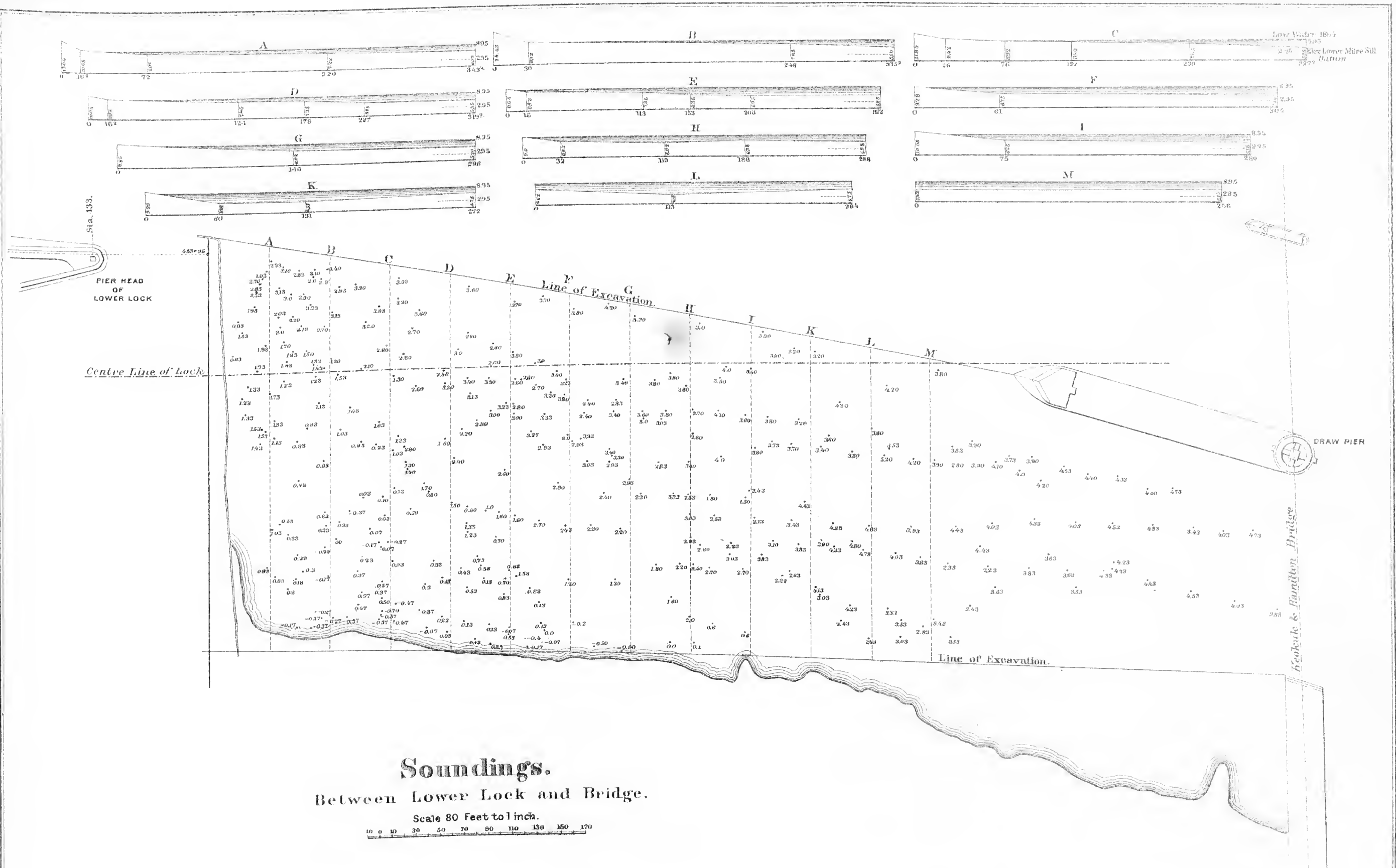


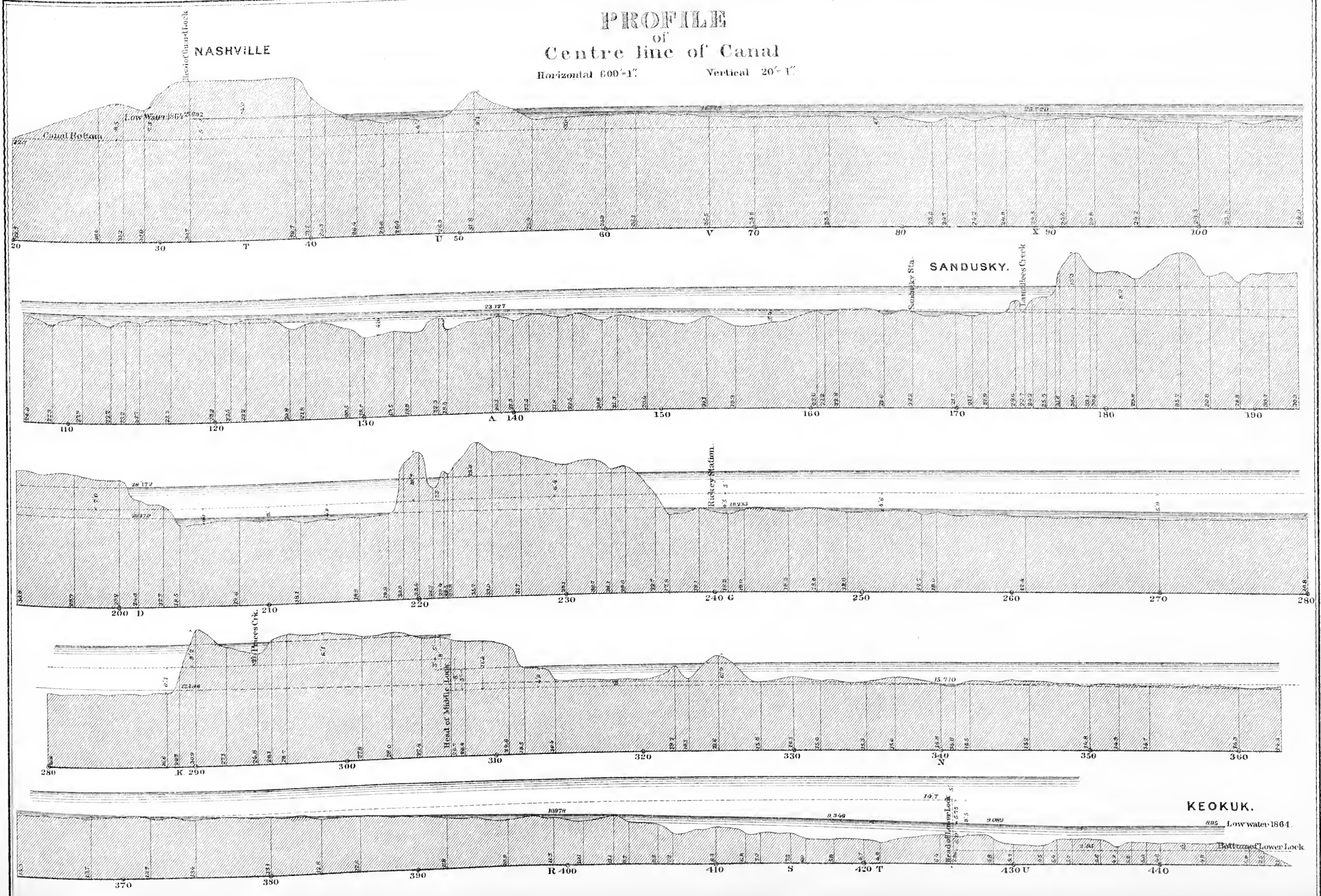
MAP

showing location of
GUARD LOCK.

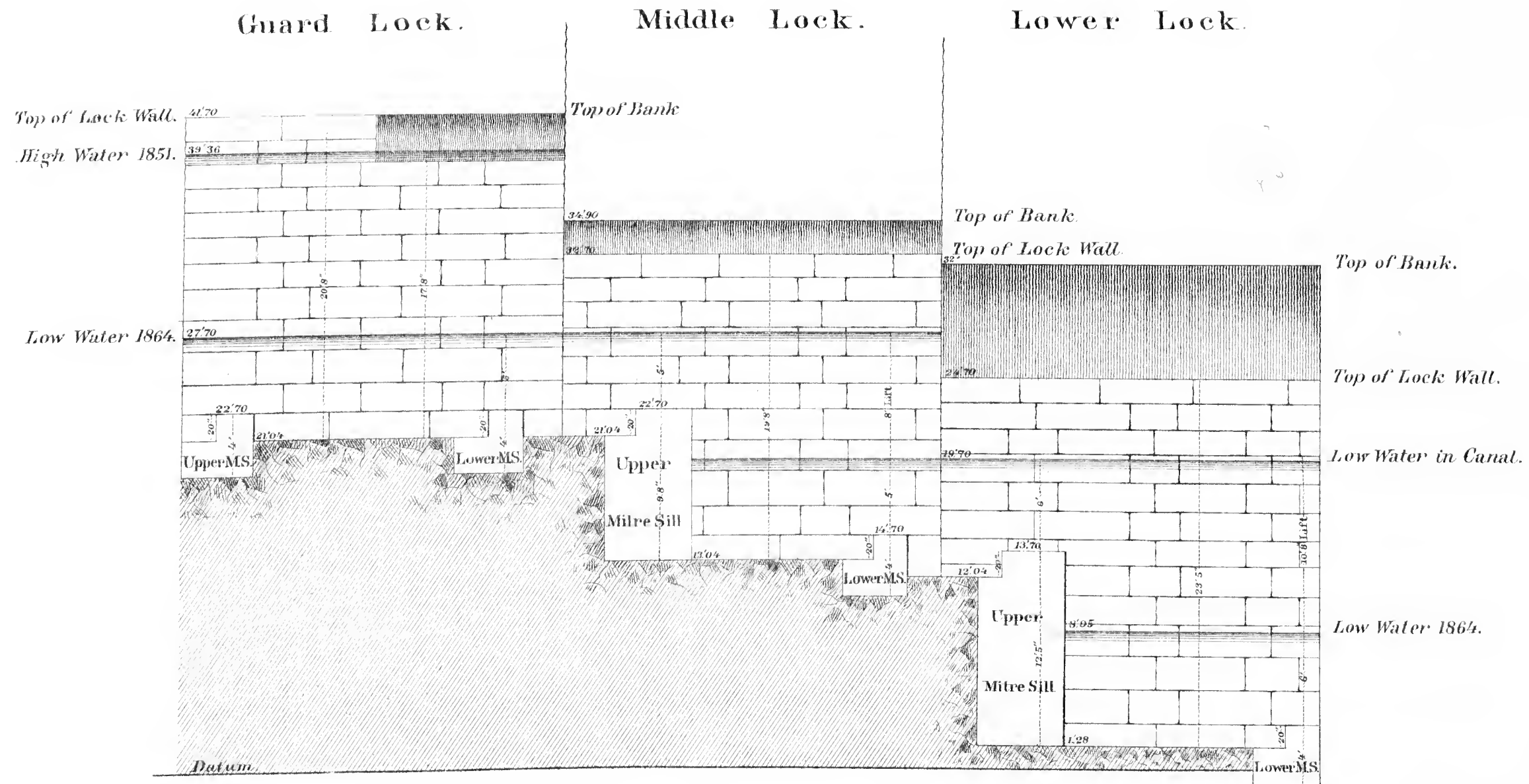
SCALE 300 FEET TO 1 INCH.





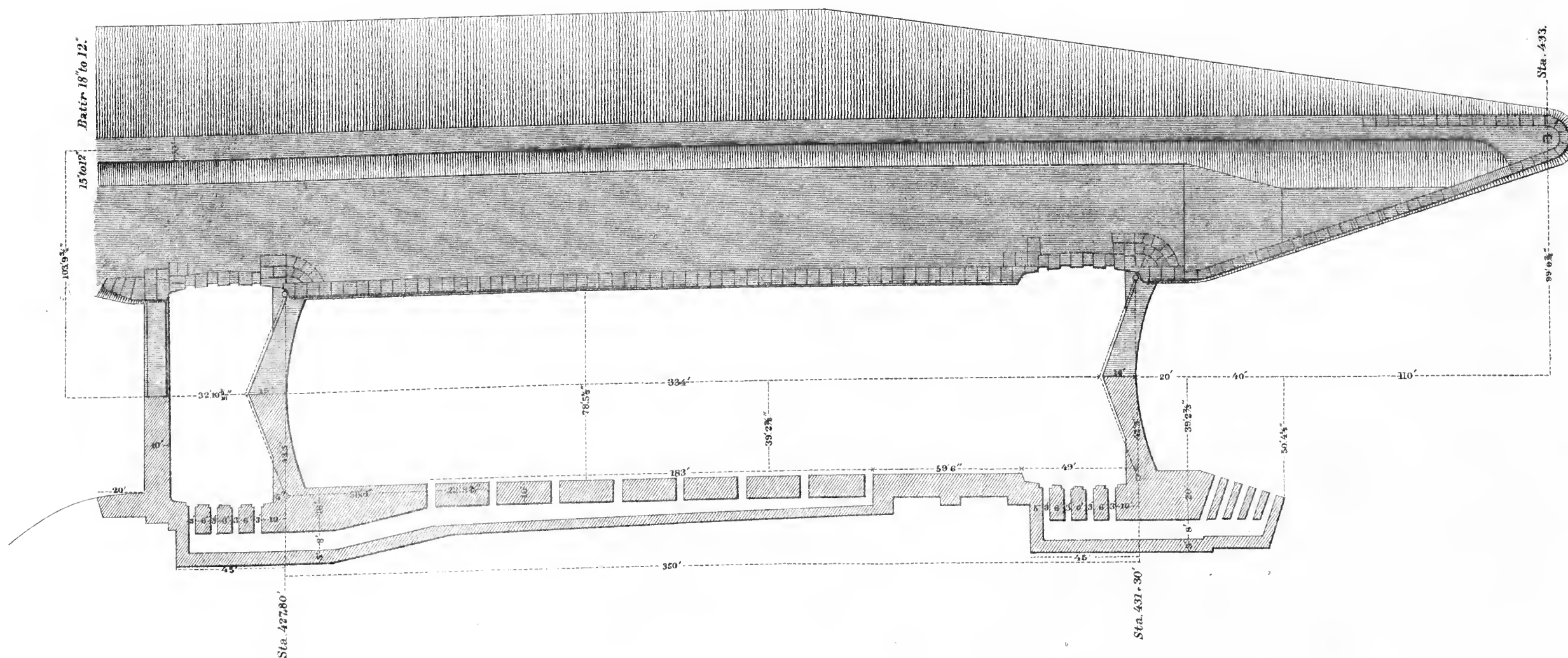


Reference.



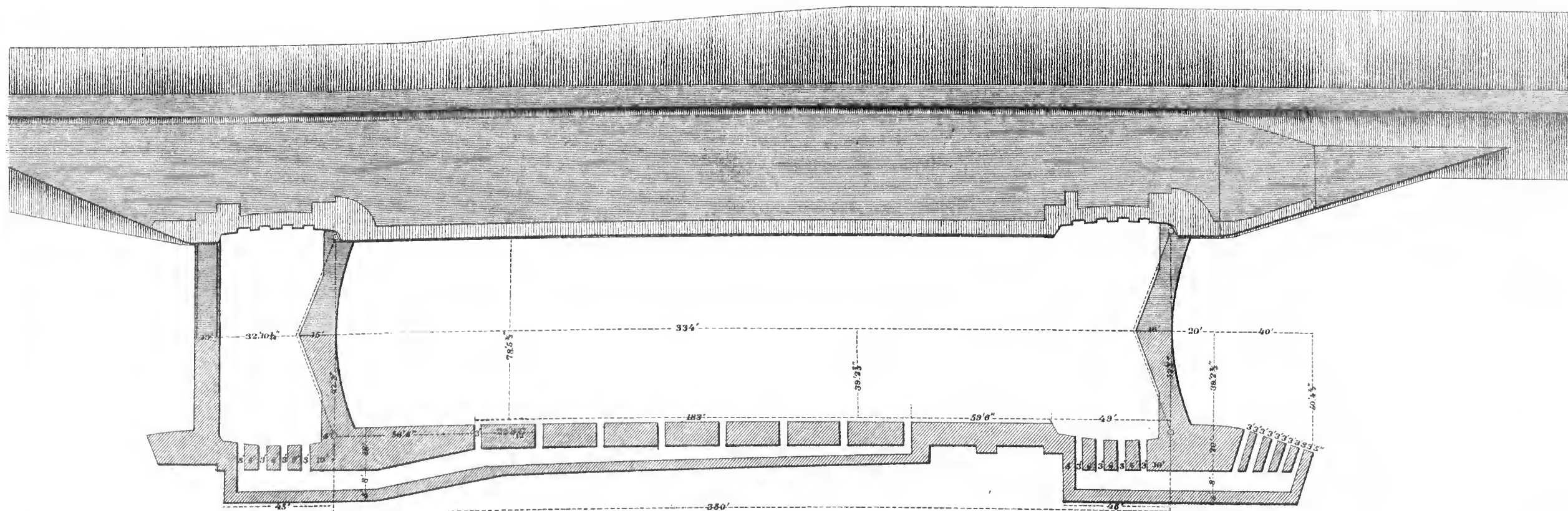
GENERAL PLAN OF LOWER LOCK.

Scale 50 ft to 1 inch.



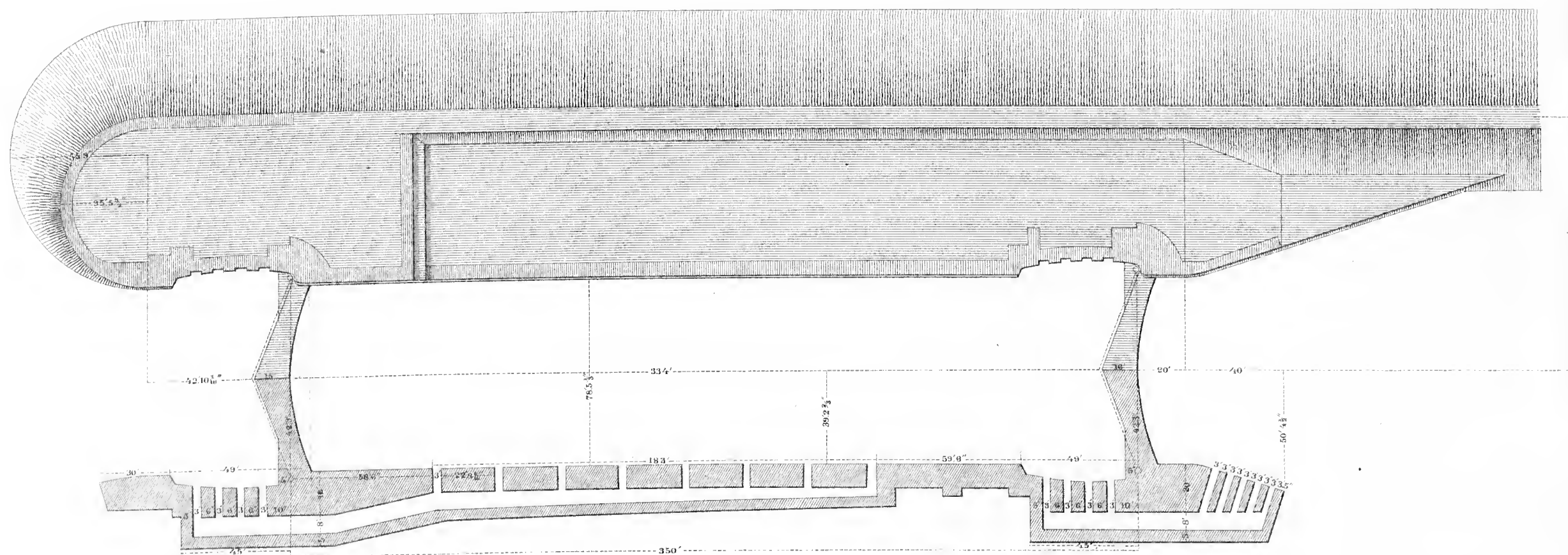
GENERAL PLAN OF MIDDLE LOCK.

Scale 50 ft to in.



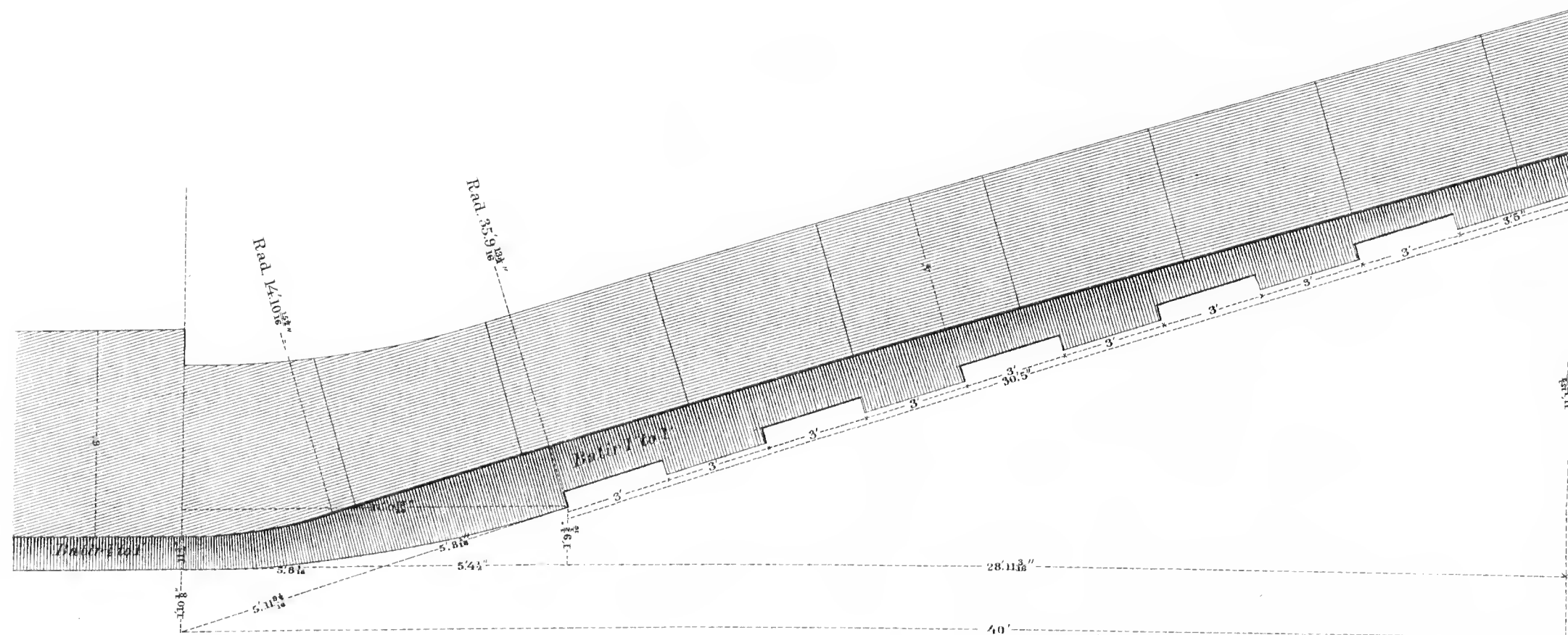
GENERAL PLAN OF GUARD LOCK.

Scale 50 ft to lin.



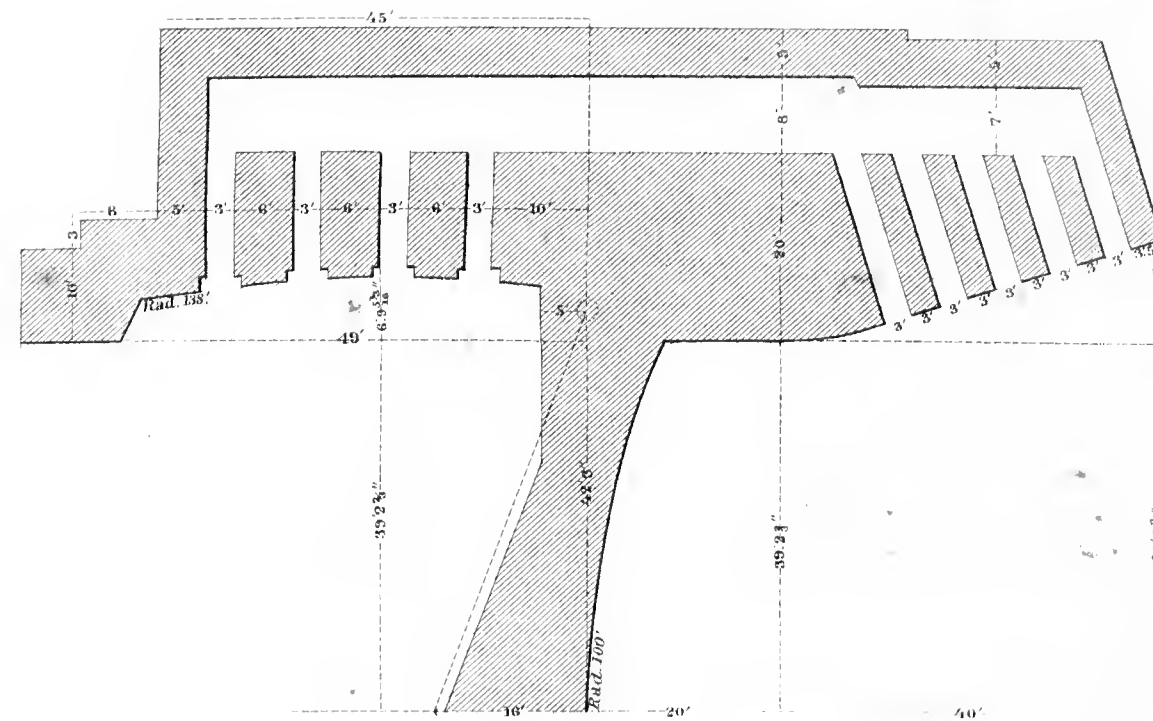
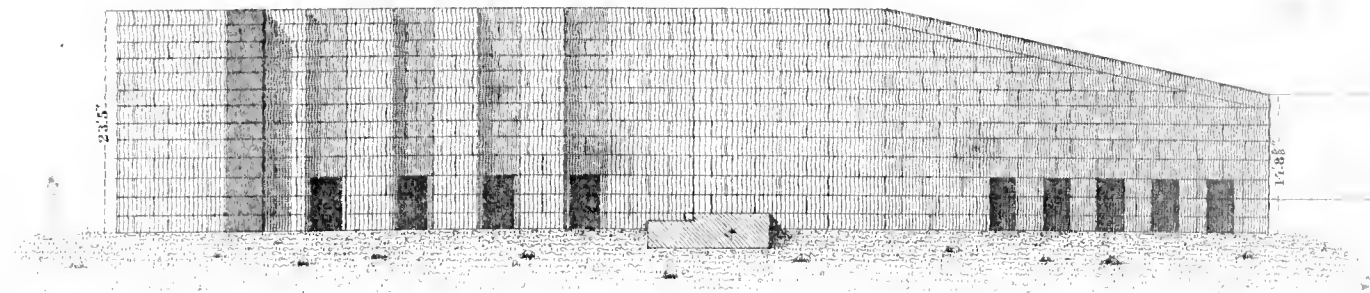
Lower Wing Wall.

Scale 4 ft. to 1 in.



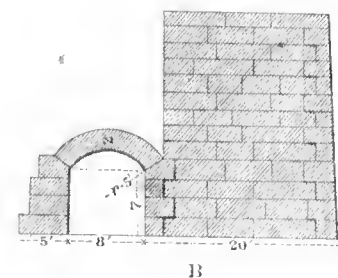
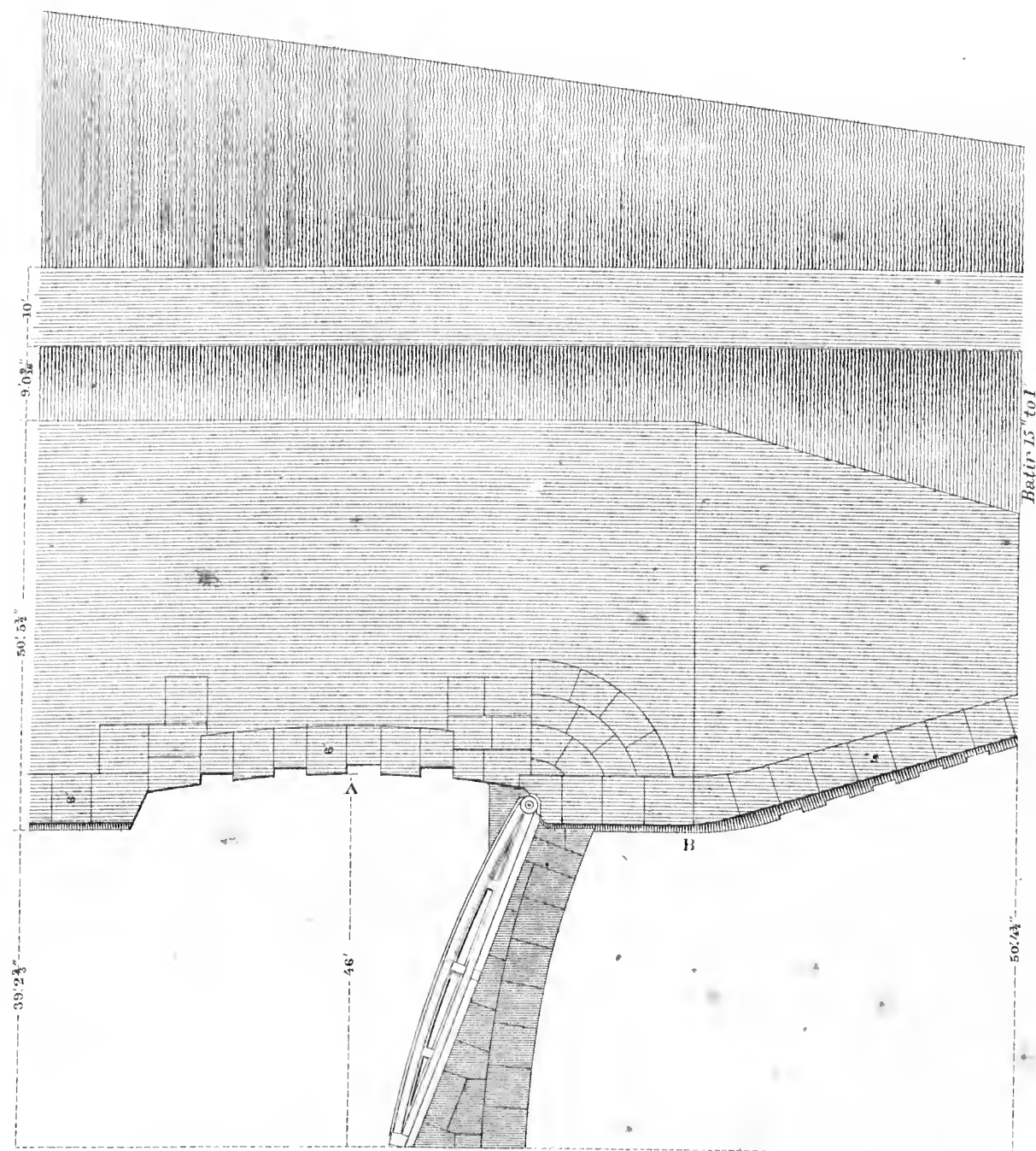
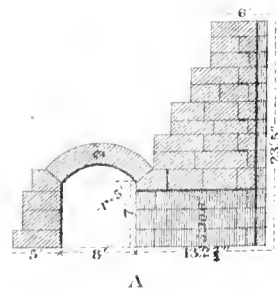
LOWER RECESS AND DISCHARGE CULVERTS.

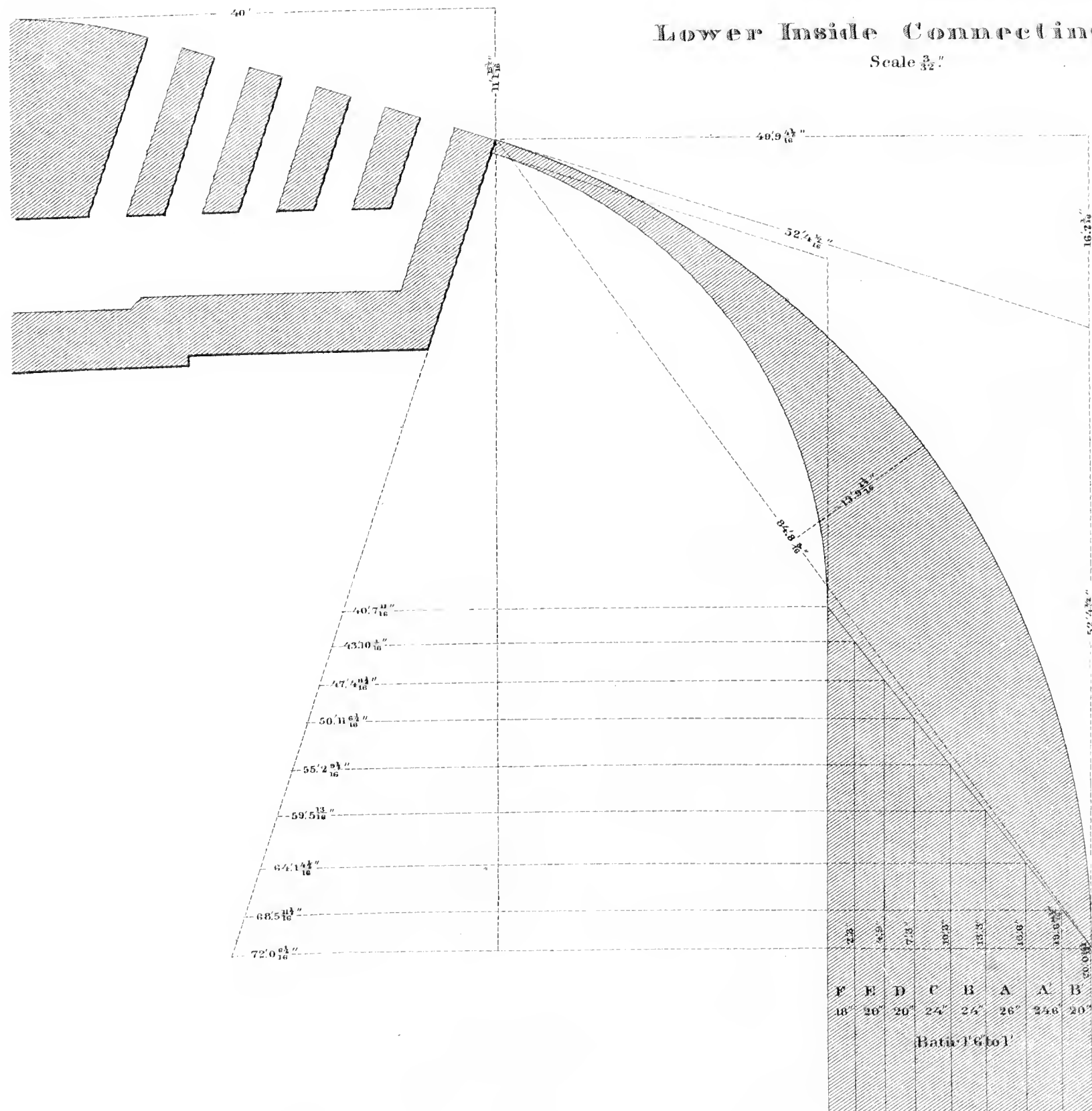
Scale 20 ft. to 1 in.



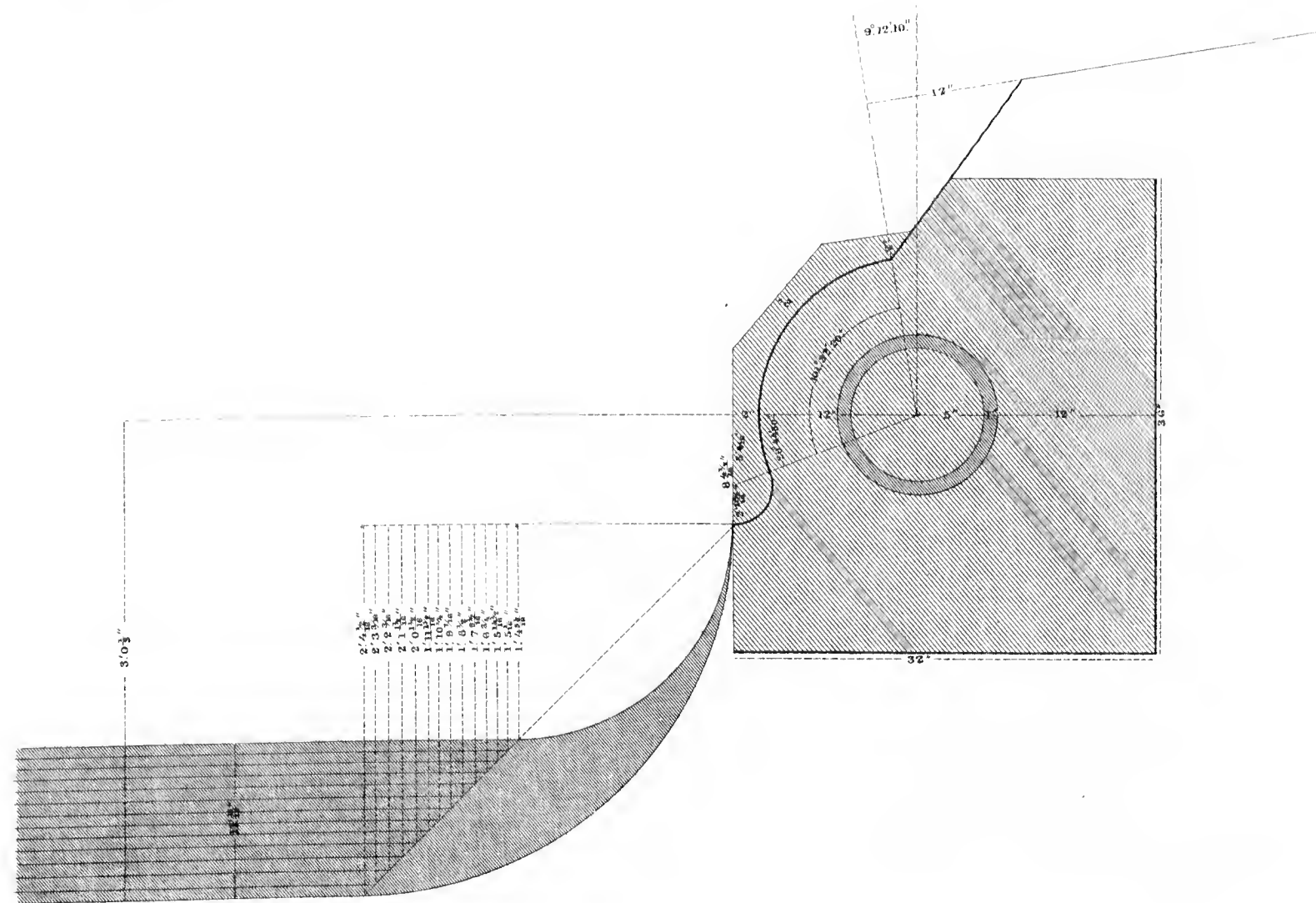
LOWER RECESS & DISCHARGE CULVERTS.

Scale 20 ft. to 1 in.



Scale $\frac{3}{32}"$ 

Winning Place
AT
HEEL POST.
Scale 110"



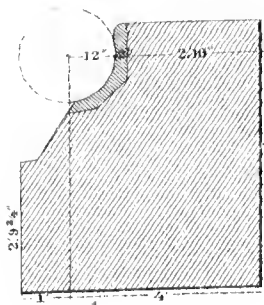
Hollow Quoin Stones.

Scale 4 ft. to 1 in.

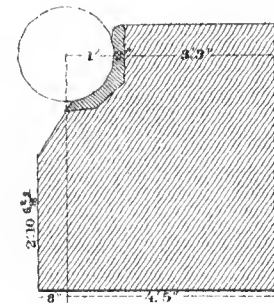
UPPER MITRE SILL.

LOWER MITRE SILL.

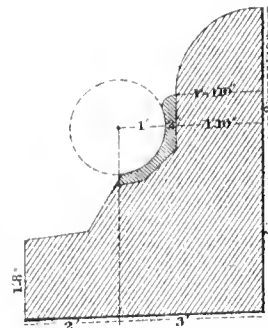
E = 20"



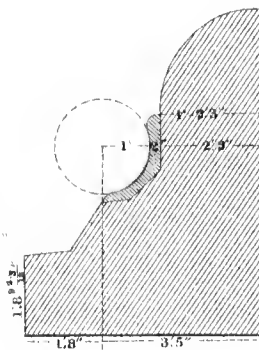
B' = 20"



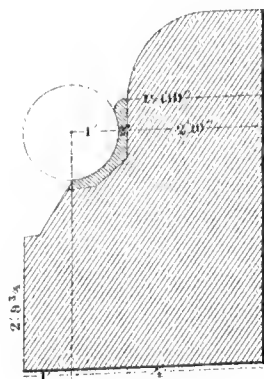
F = 22"
H = 20"
K = 20"



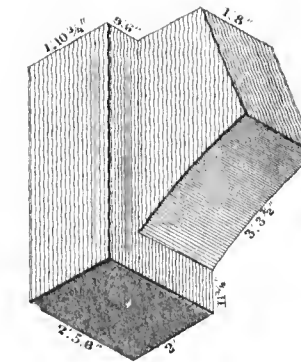
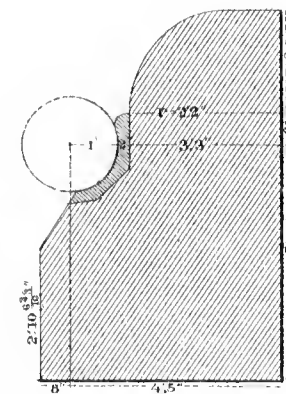
A = 24 1/2"
B = 24"
D = 20"
F = 22"
H = 20"
K = 20"



G = 22"
I = 20"
L = 18"

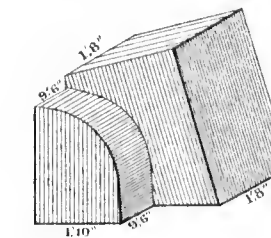


A = 26"
C = 24"
E = 20"
G = 22"
I = 20"
L = 18"



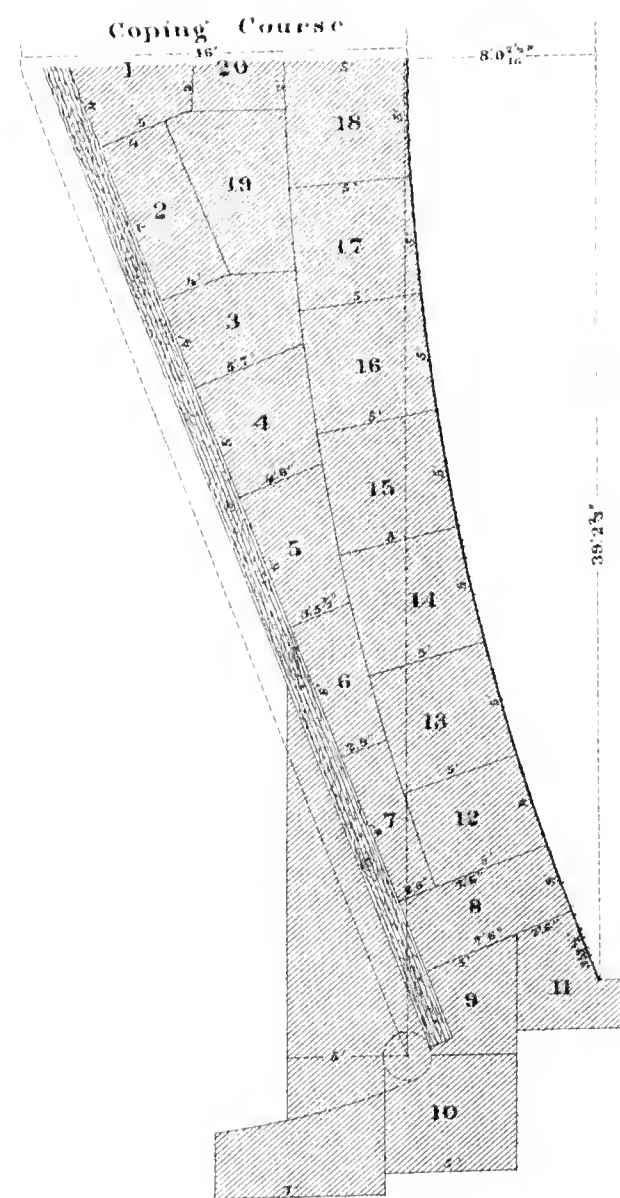
Stone No. 11.

Stone No. 9.

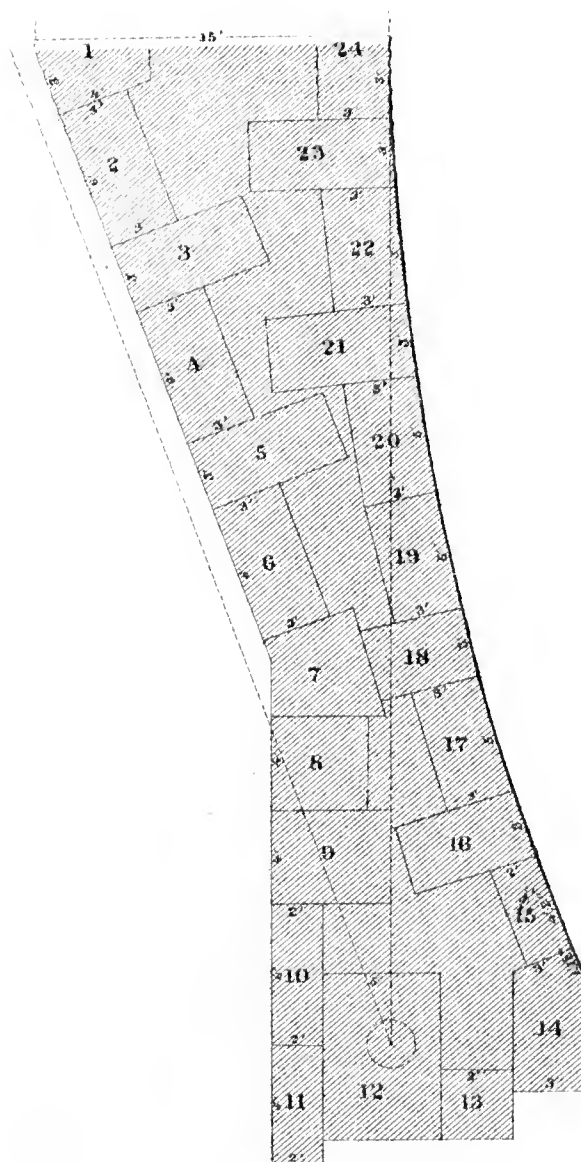


Mitre Sills.

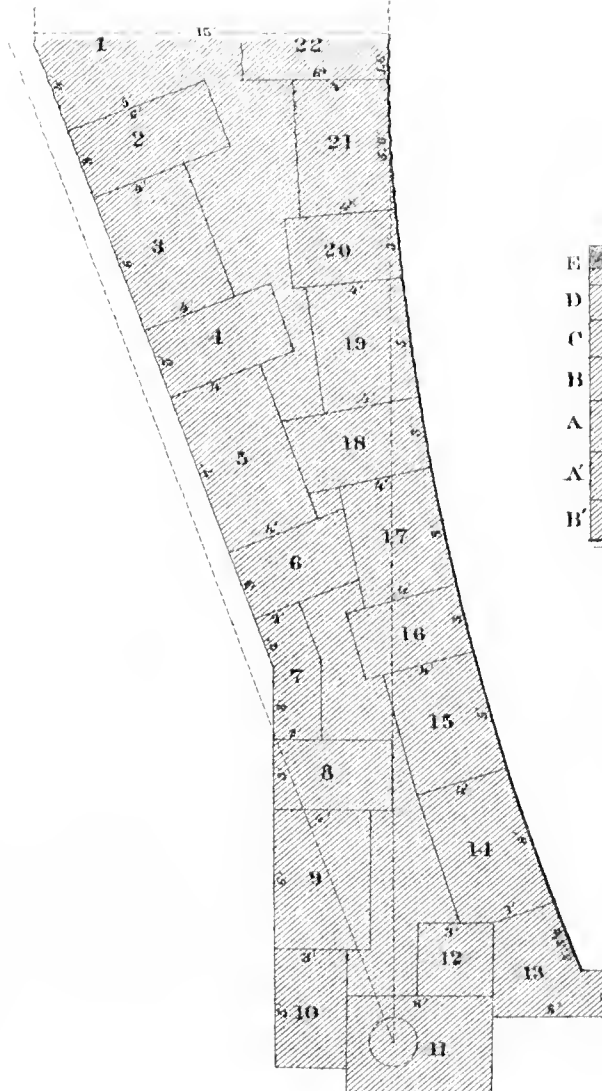
Scale 8 ft to in.



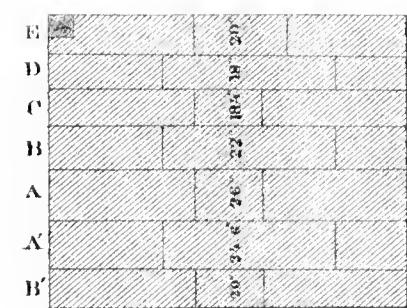
B = 20" Coping
E = 20" "



A' = 24.6"
B = 22"
D = 18"
of Upper M.S.
&
C' = 28"
of Lower M.S.



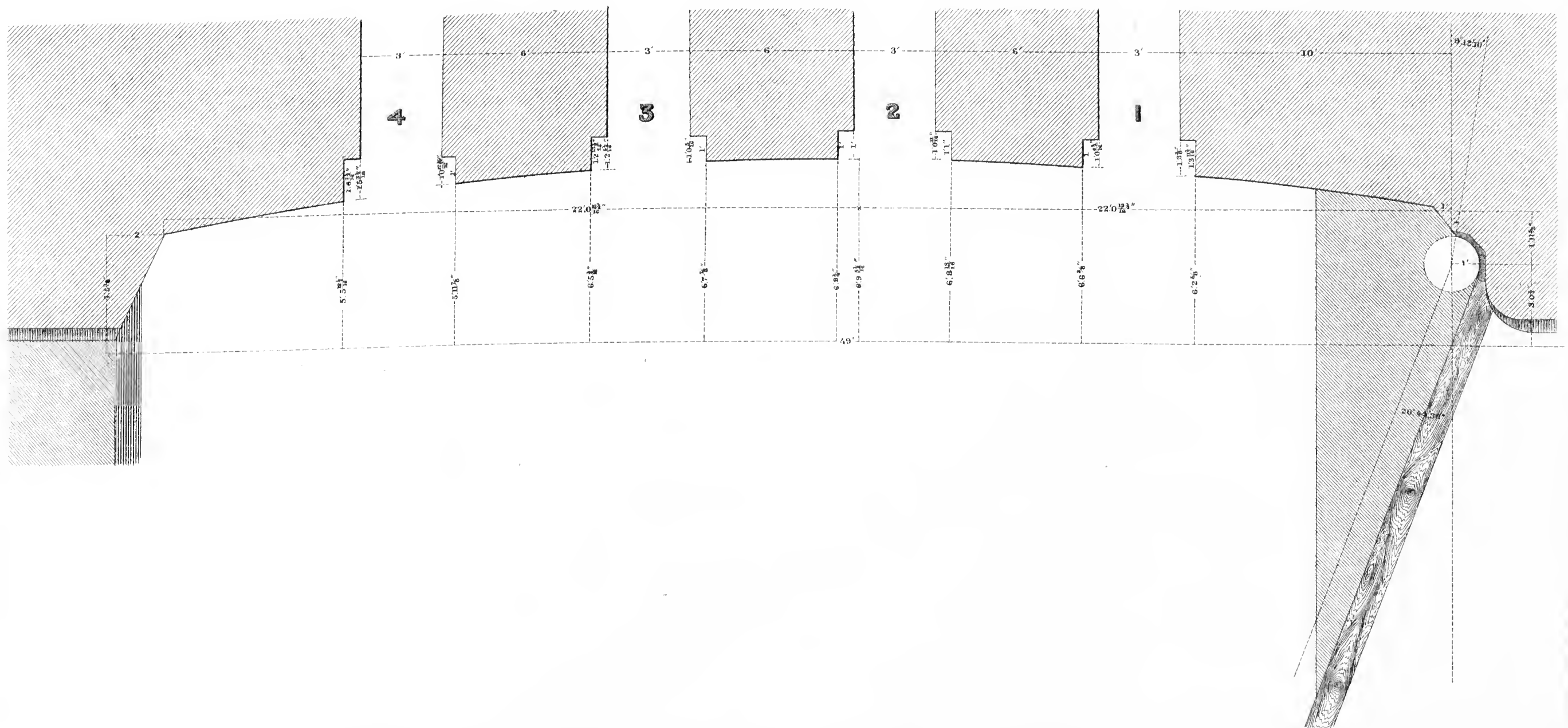
B' = 20"
A = 26"
C = 18.4"
of Upper M. S.



Section through Apex.

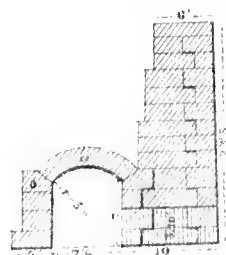
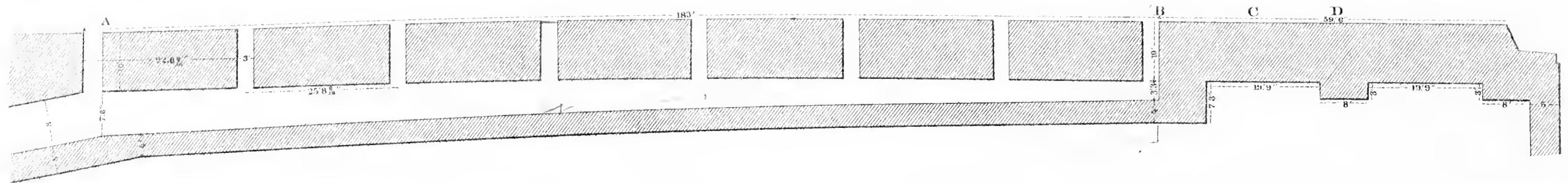
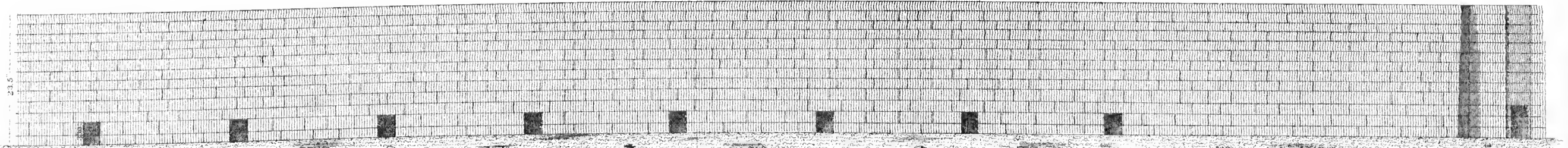
21

21

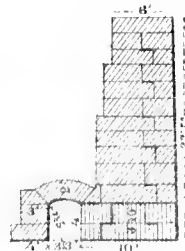


RECEIVING CULVERTS.

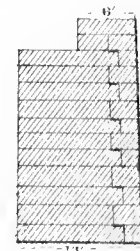
Scale 20 ft. to in.



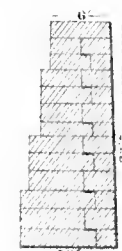
A



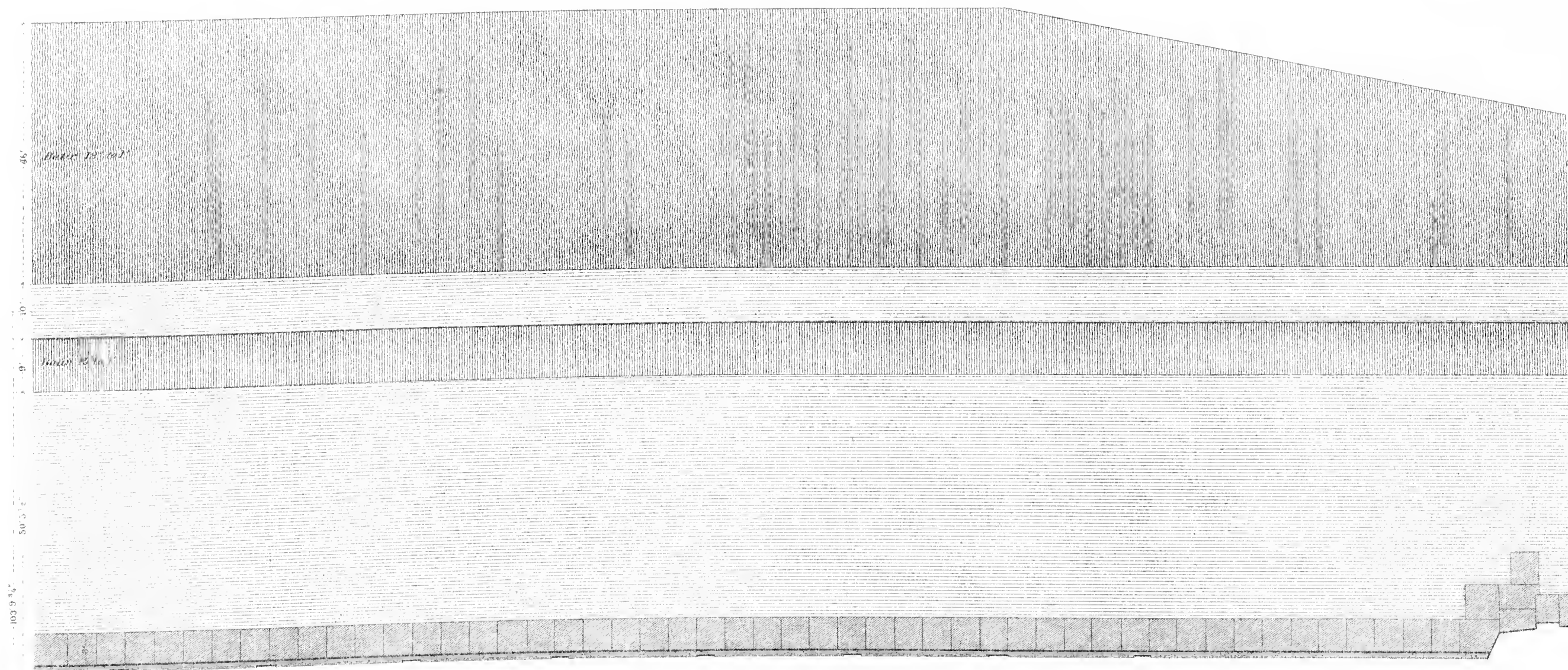
B



C



D

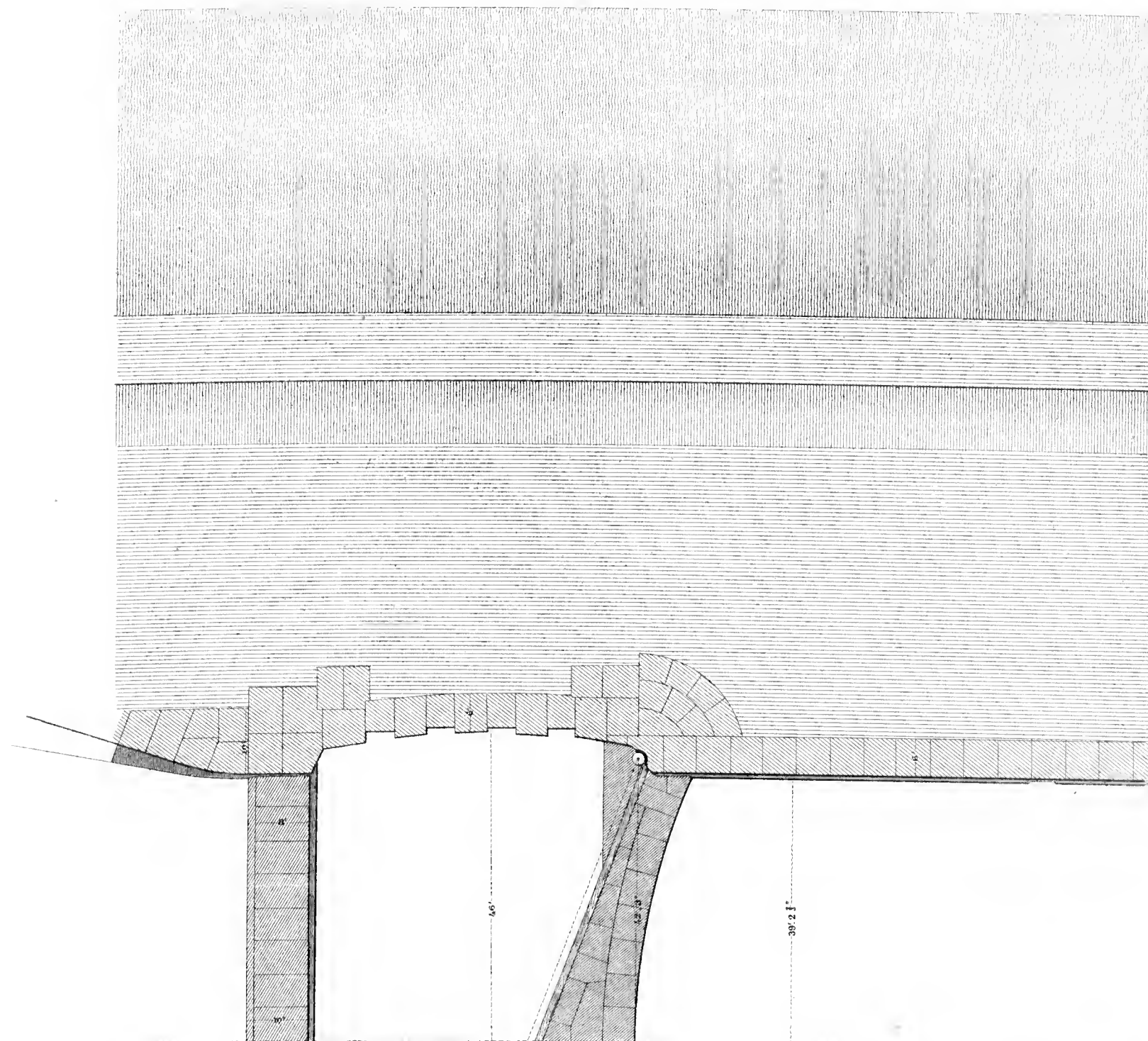


PLAN OVER
RECEIVING CULVERTS.

Centre of Lock

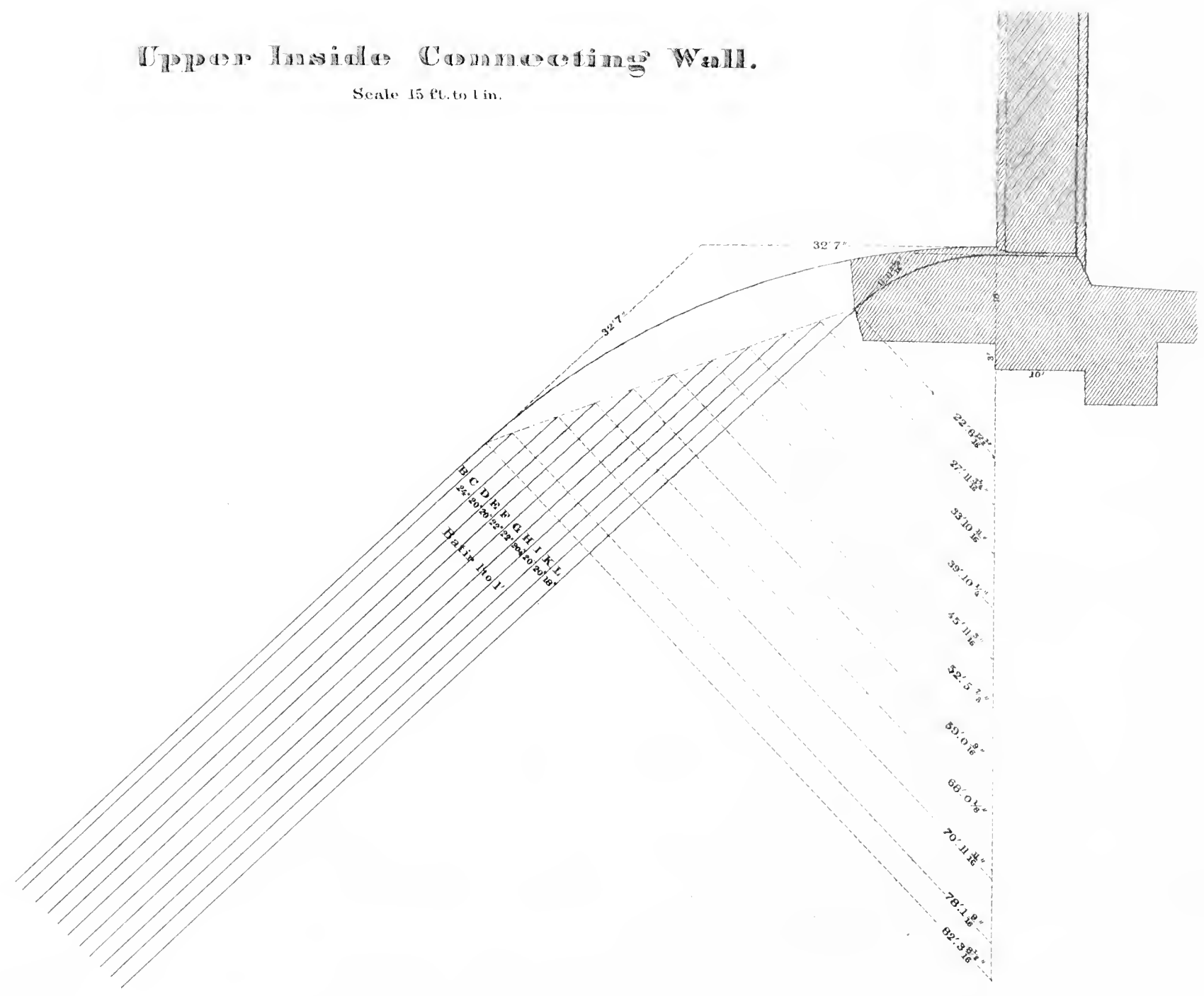
UPPER RECESS.

Scale 20 ft. to 1 in.



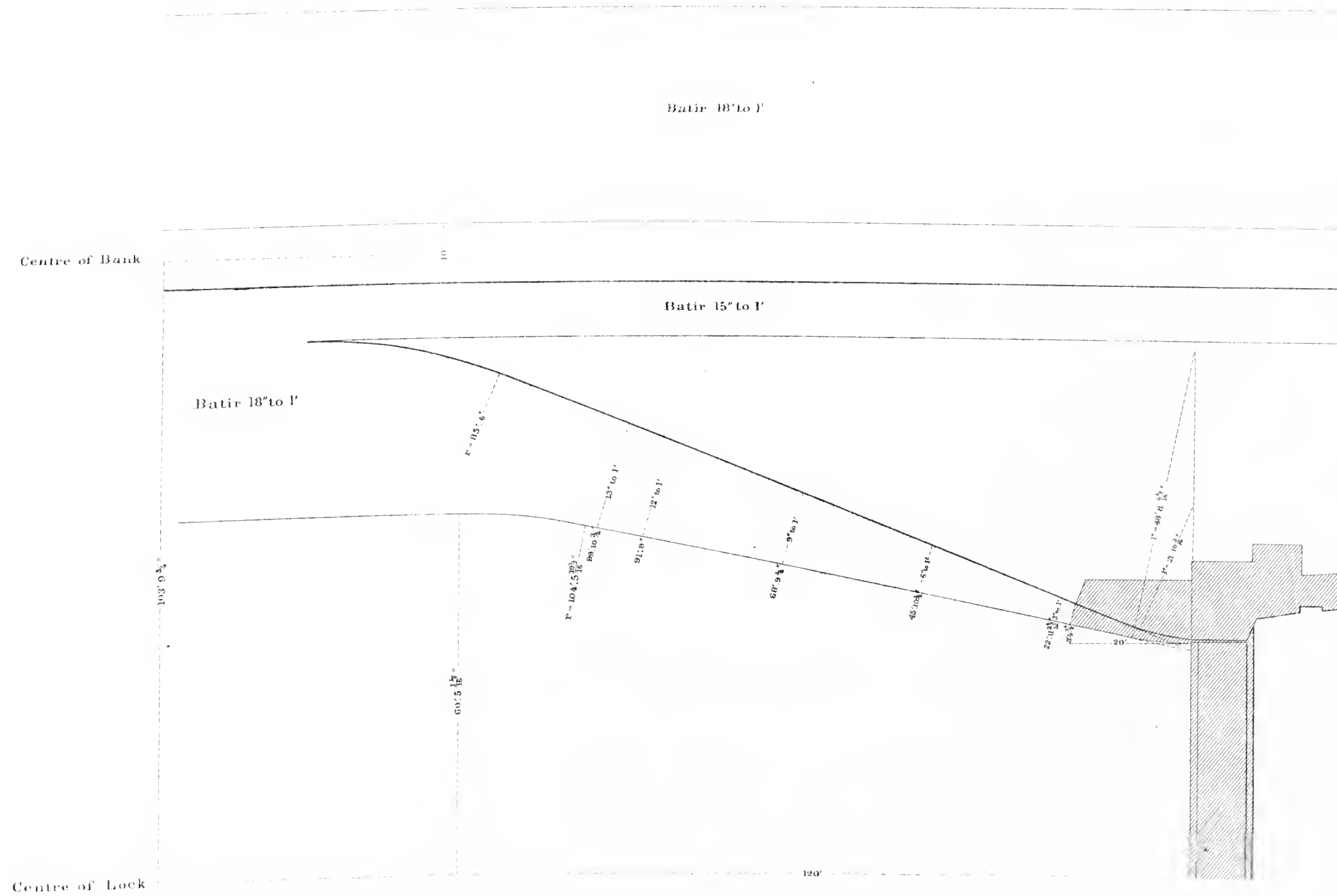
Upper Inside Connecting Wall.

Scale 15 ft. to 1 in.



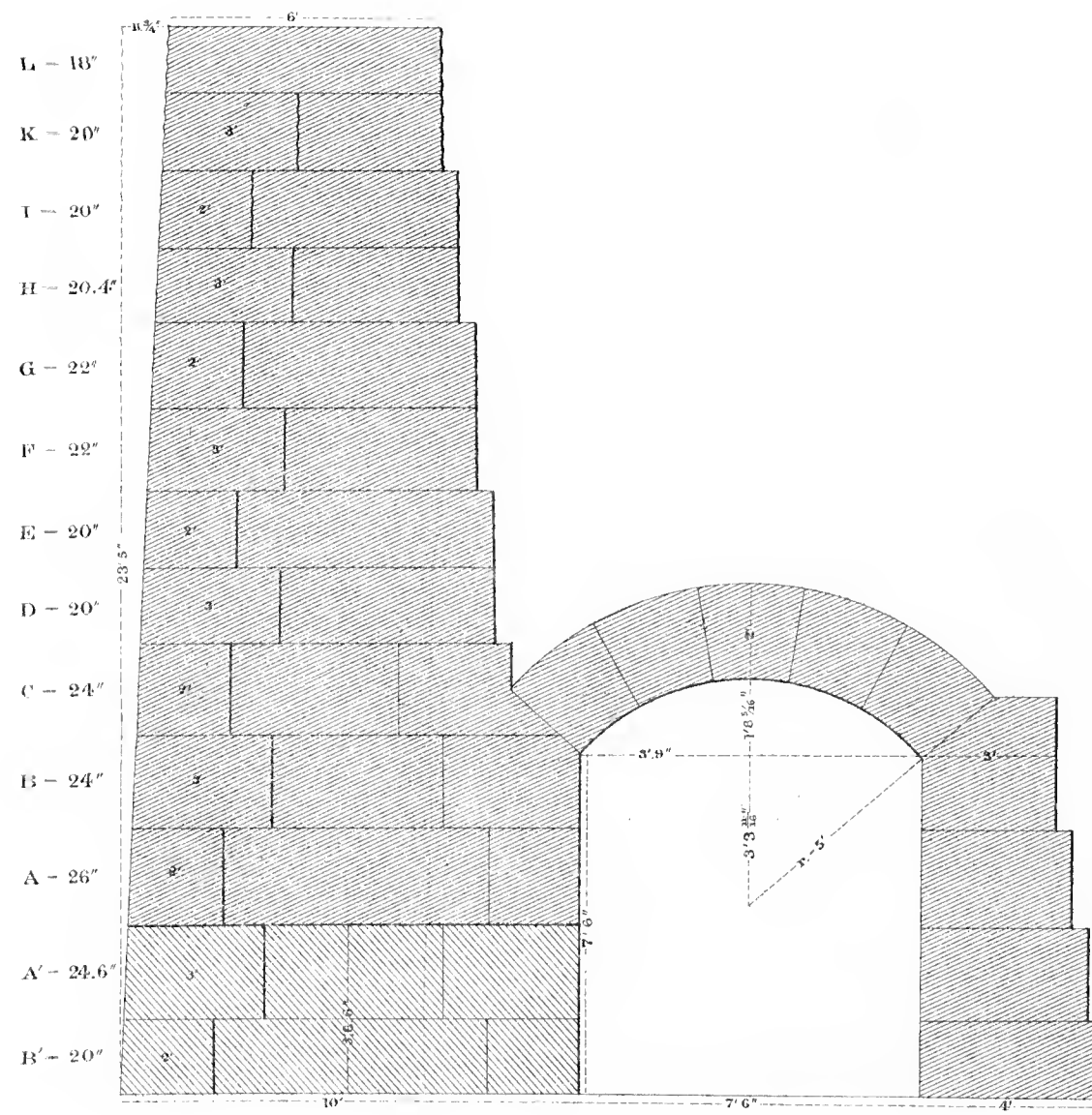
Upper Outside Connecting Wall

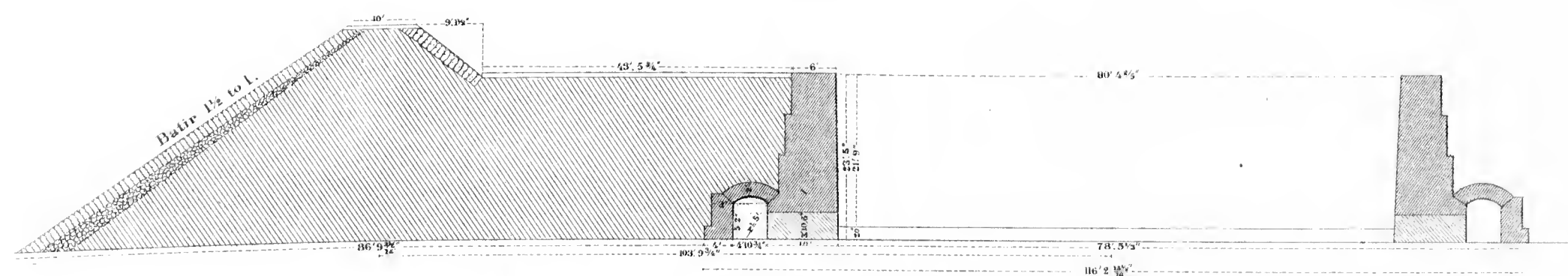
Scale 20 ft. to 1 in.



General Section through Lock Wall.

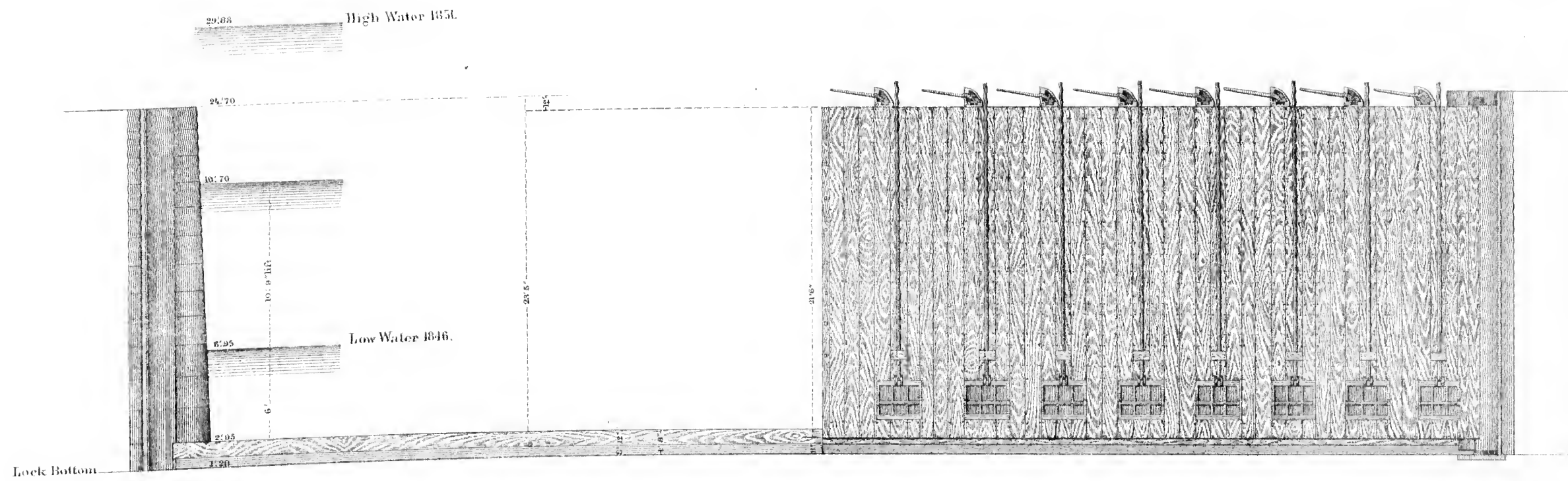
Scale 4 ft. to 1 in.





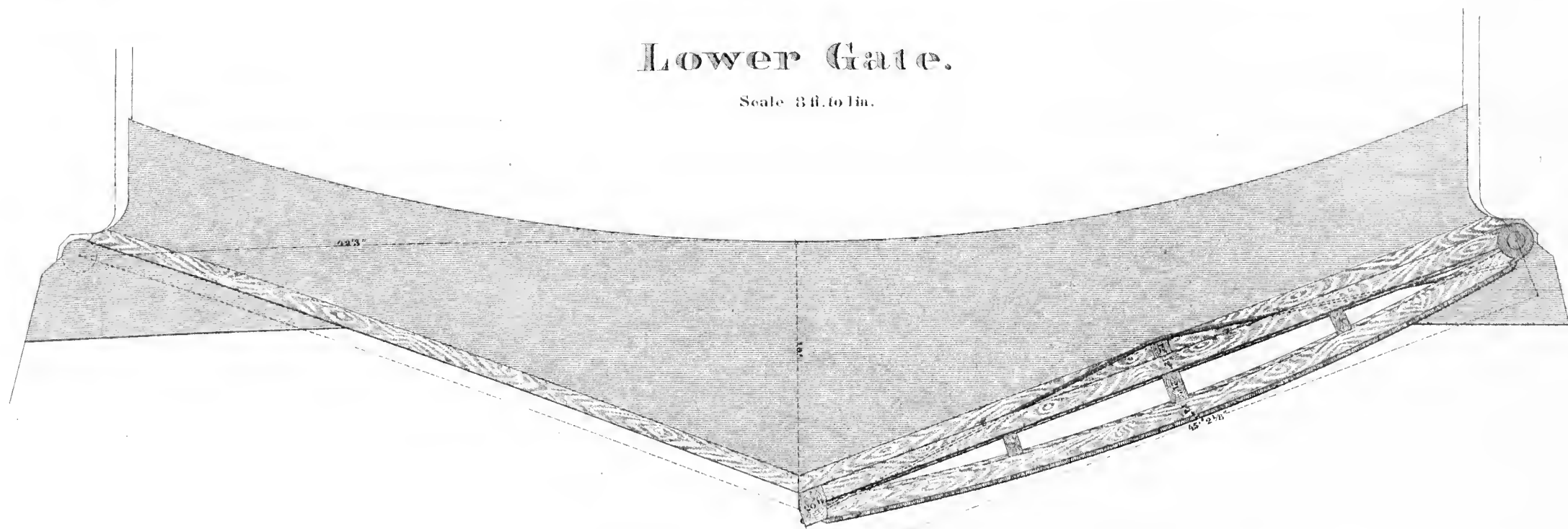
Section at Sta. 429.50.

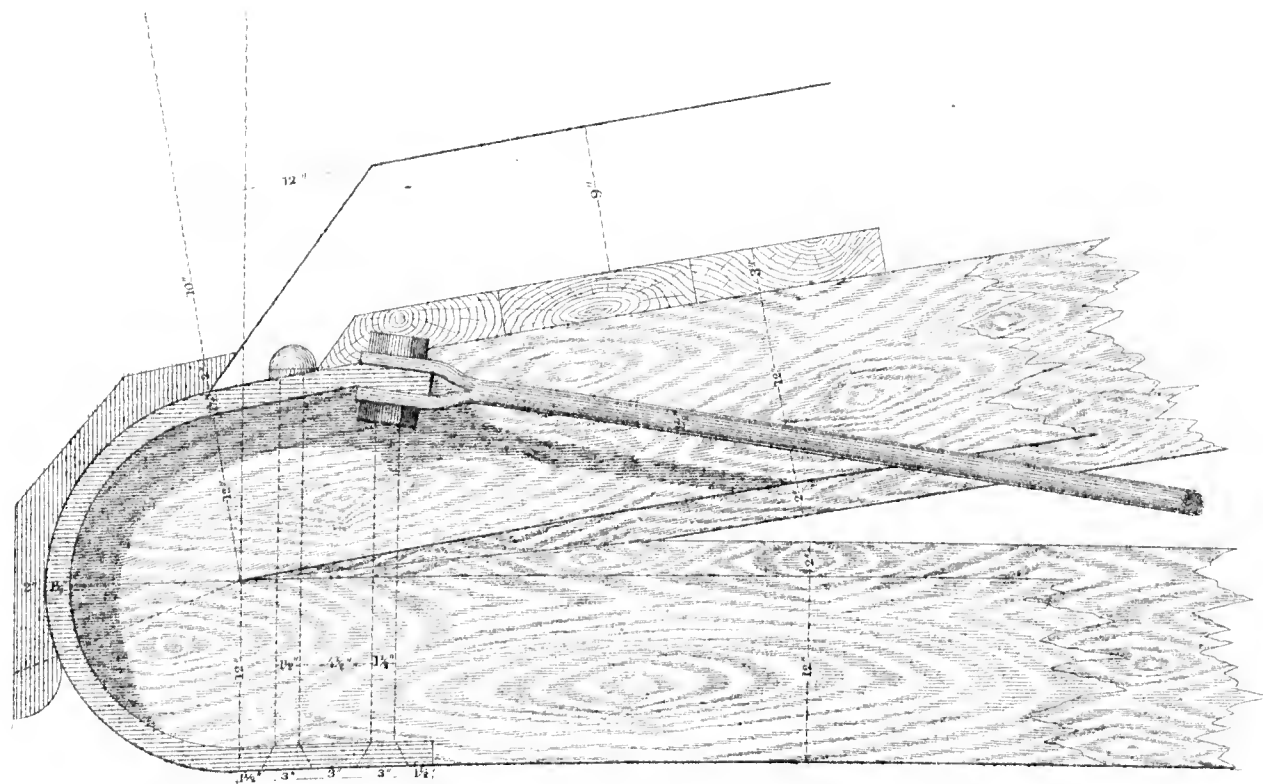
Scale 20 ft. to 1 in.



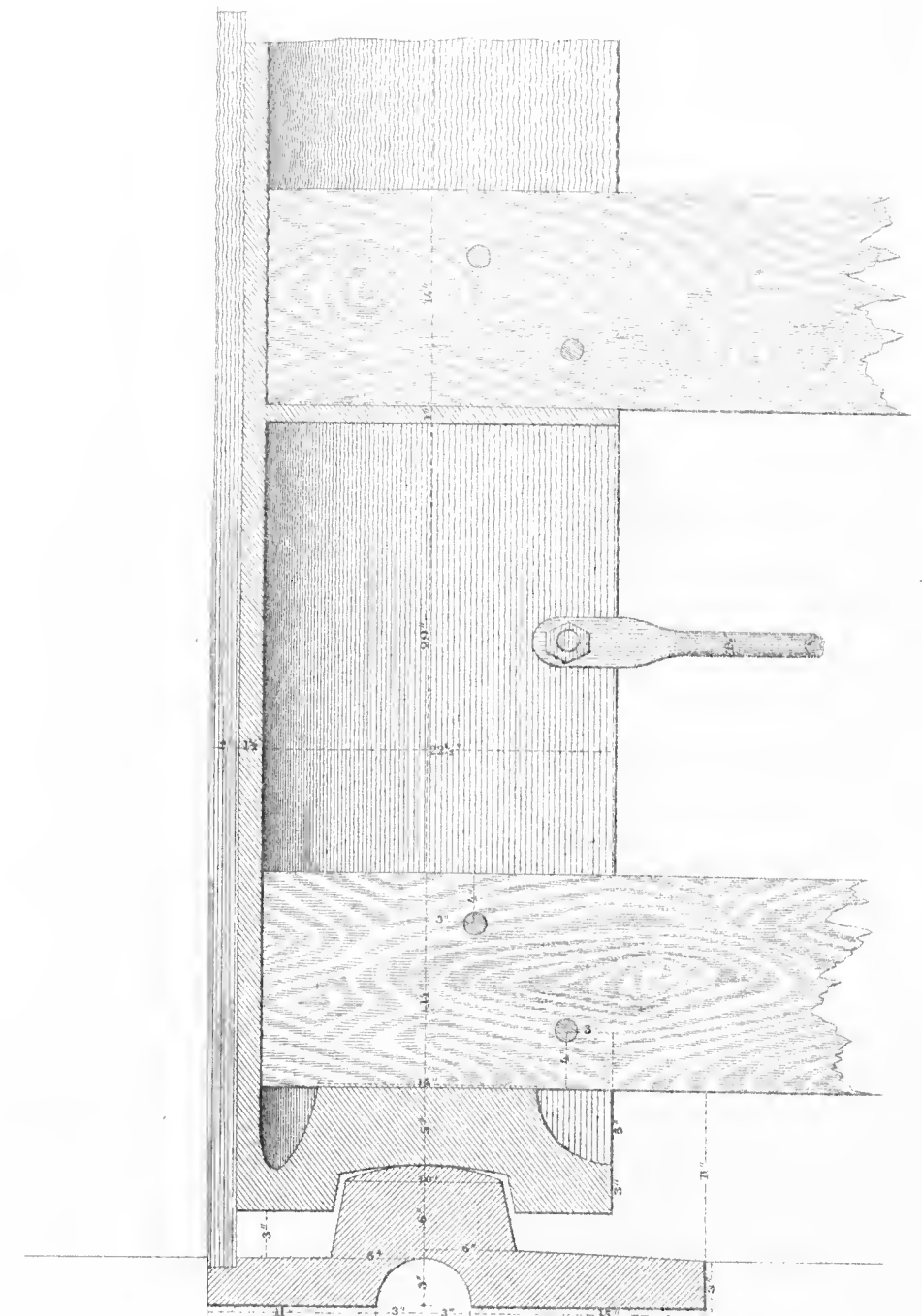
Lower Gate.

Scale 3 ft. to in.



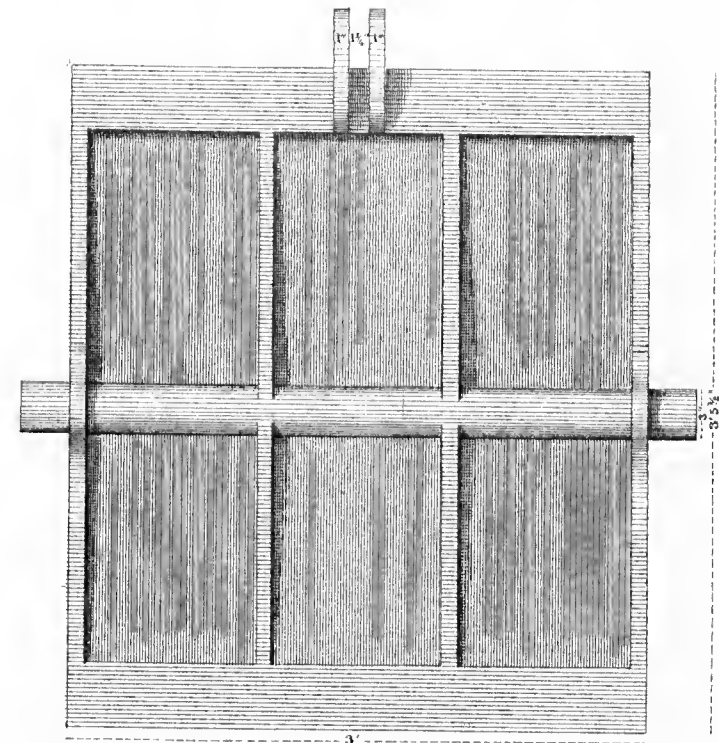
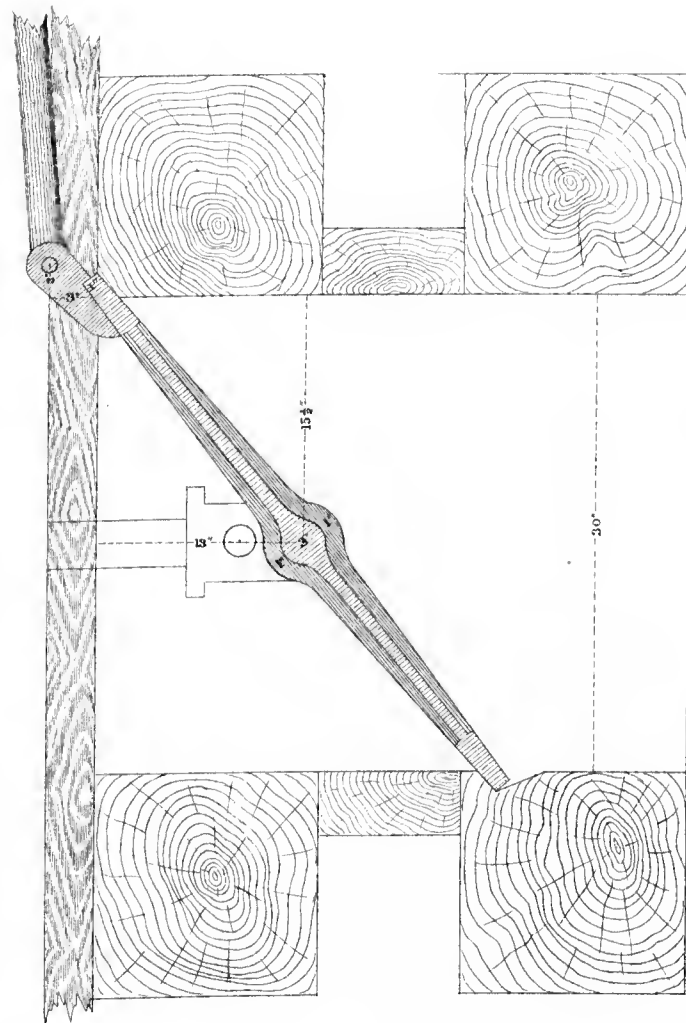


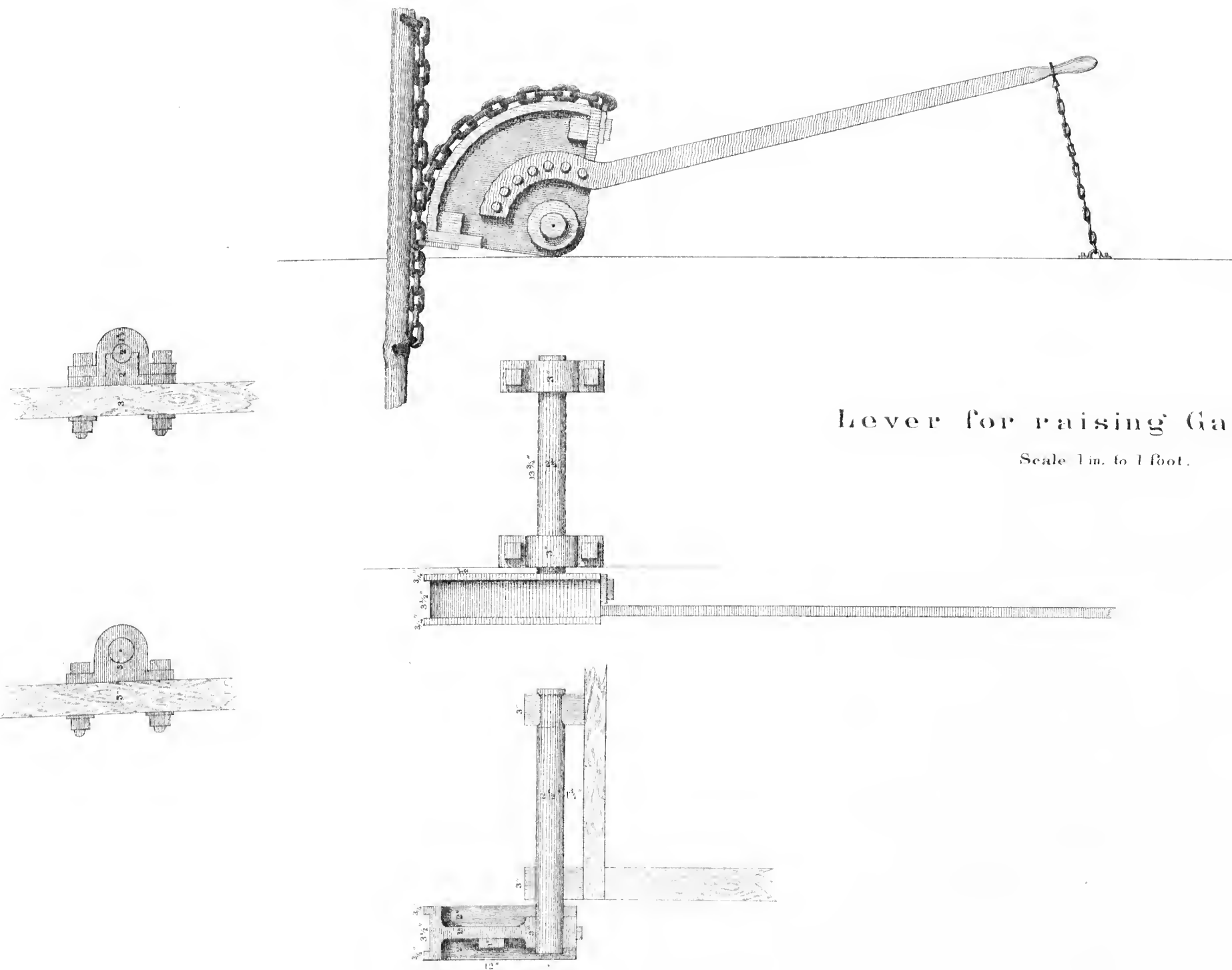
Plan of Heel Post & Hollow Quoin.



Vertical Section.

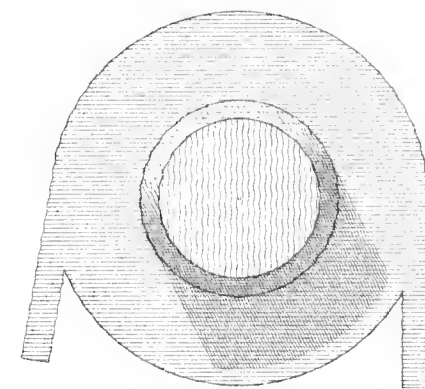
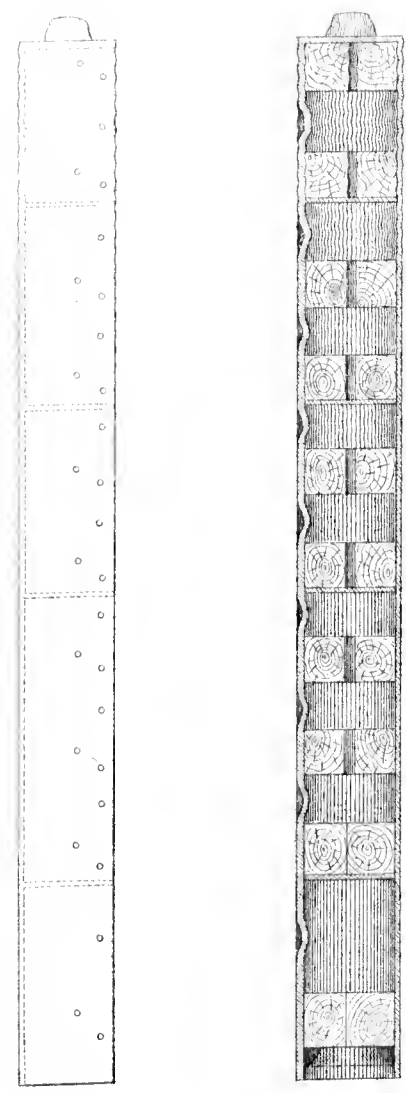
Gate Valve.





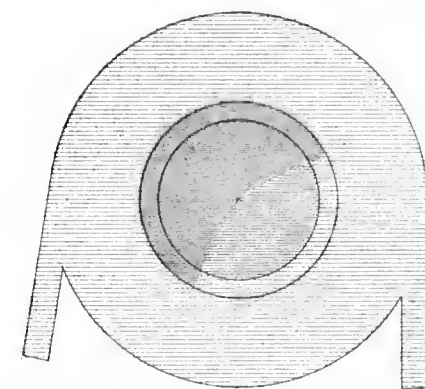
Lever for raising Gate Valve.

Scale 1 in. to 1 foot.

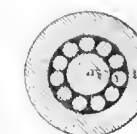
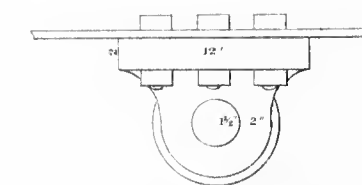
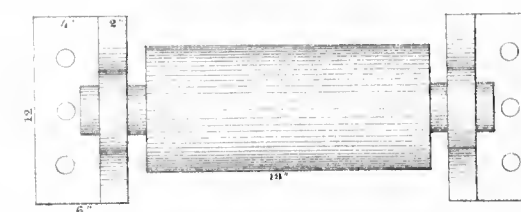
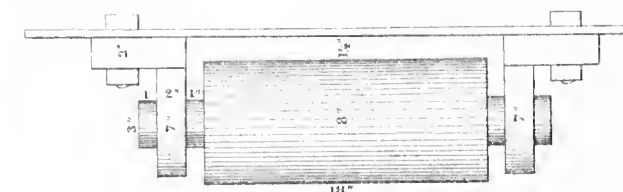
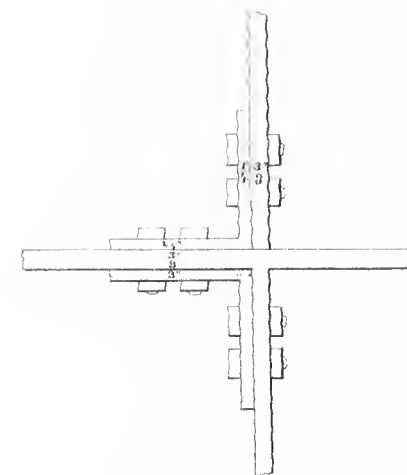
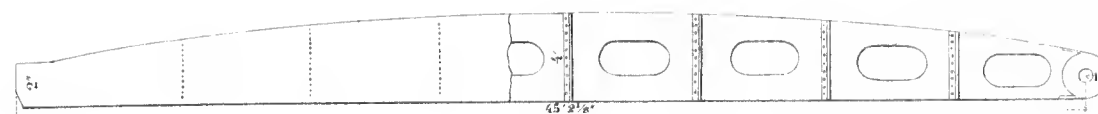
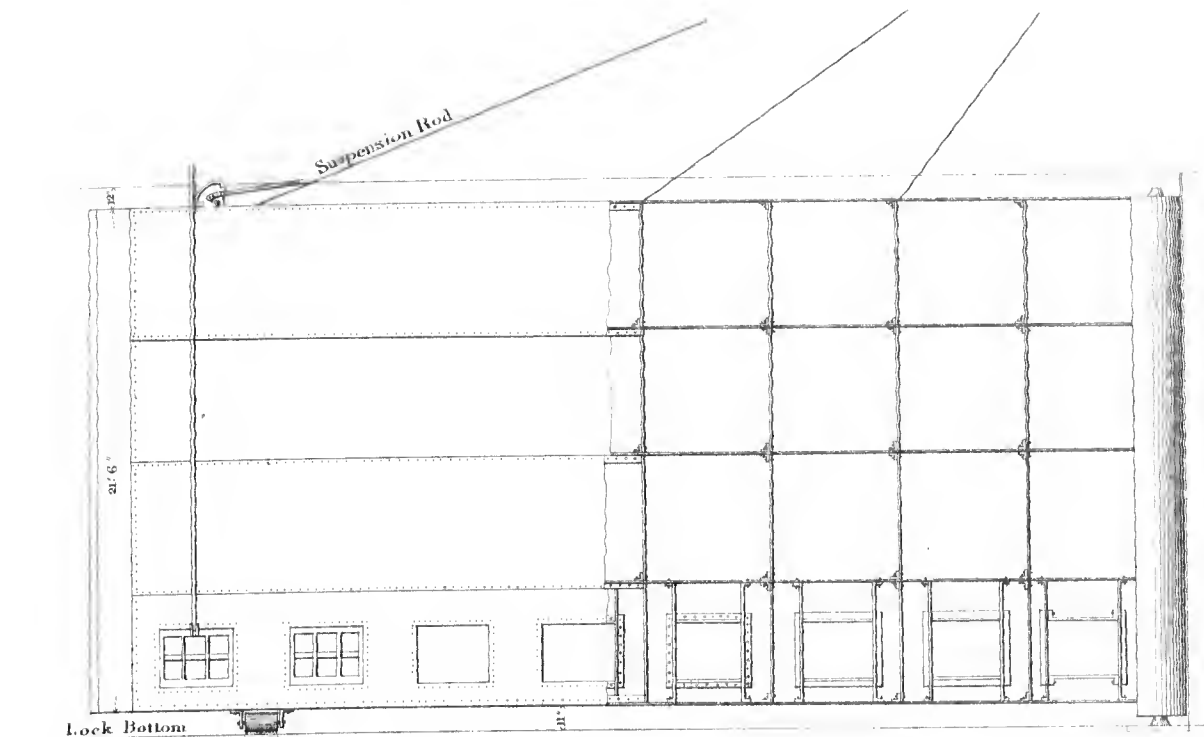
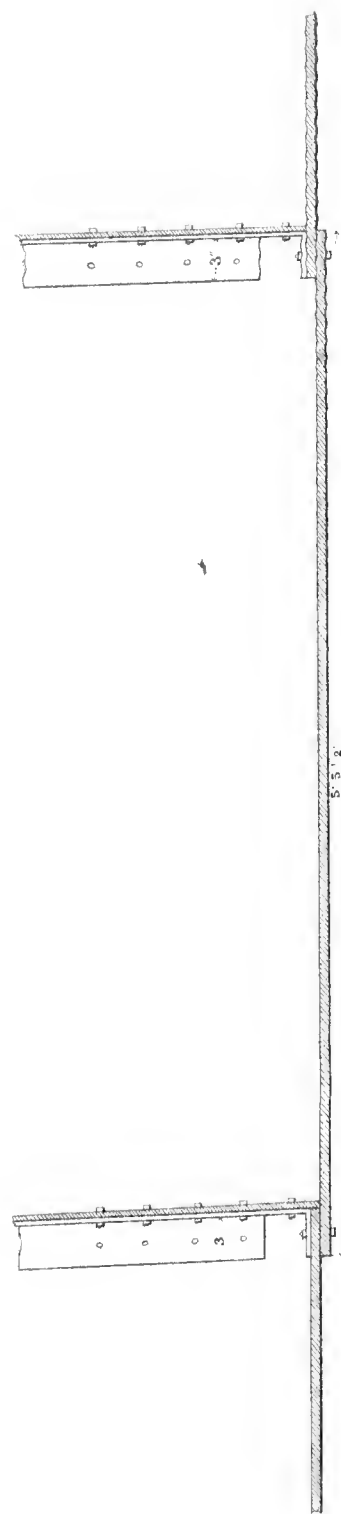


Top.

Heel Post.



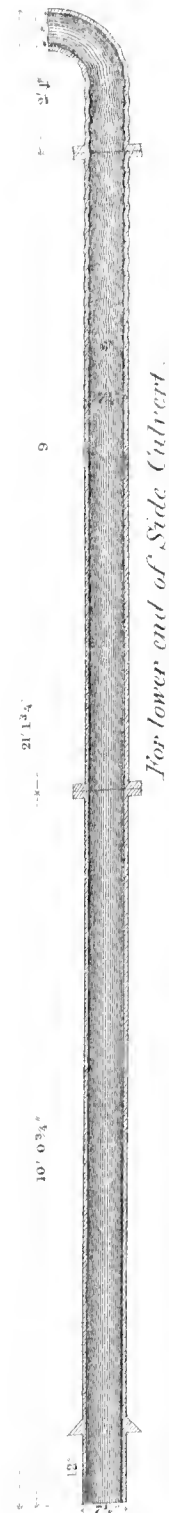
Bottom.



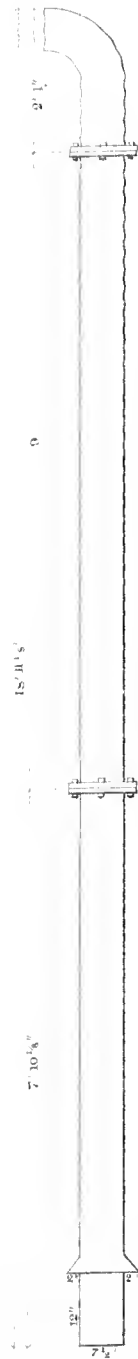
PLAN
of an
IRON GATE
presented by
A. H. BURNHAM CAPT. U.S. ENG'S.
in local charge of
DES MOINES RAPIDS IMPROVEMENT.

Note. It is proposed that these Man holes extend through each Vertical Section, and that extra Valves be provided to hold the Water in any particular space.
Rollers may be dispensed with.

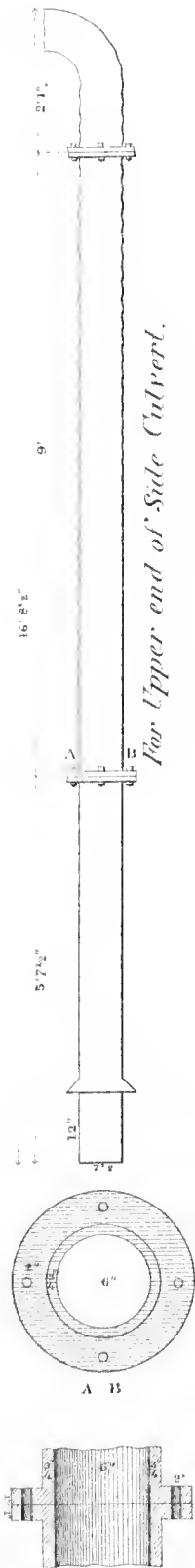
Ventilators.



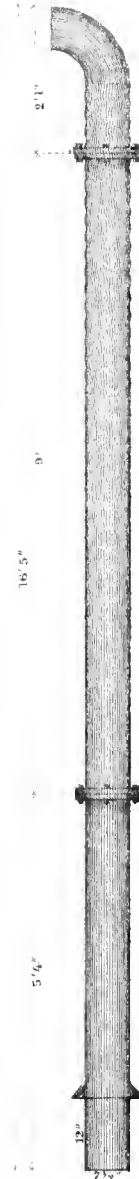
For lower end of Side Culvert.



For Middle of Side Culvert.

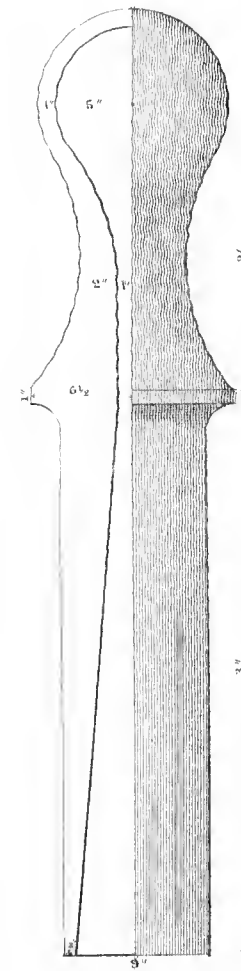


For Upper end of Side Culvert.

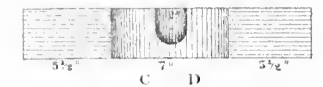
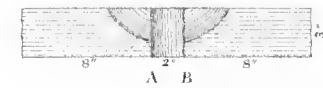
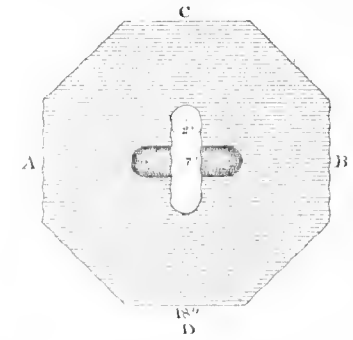


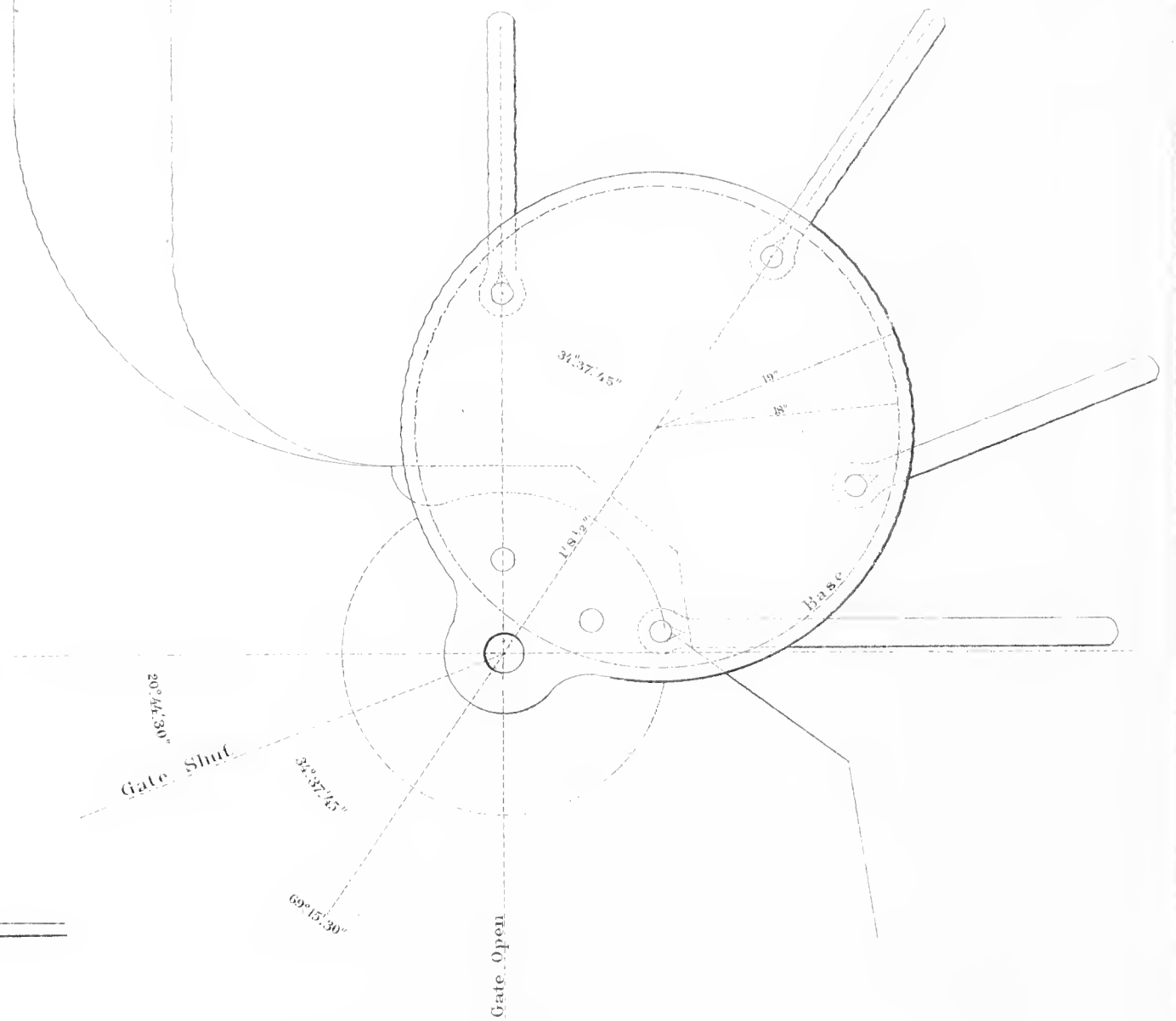
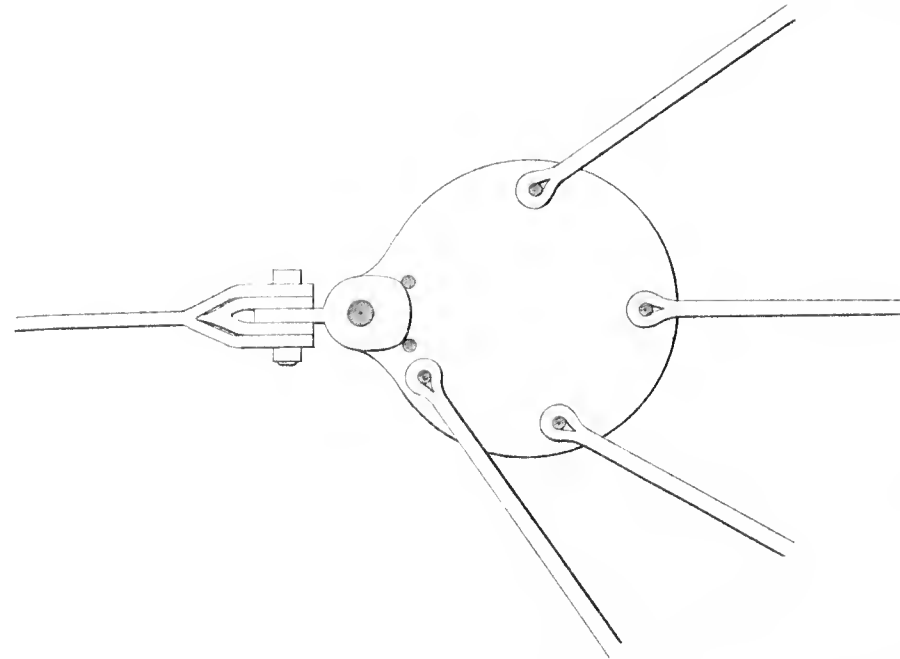
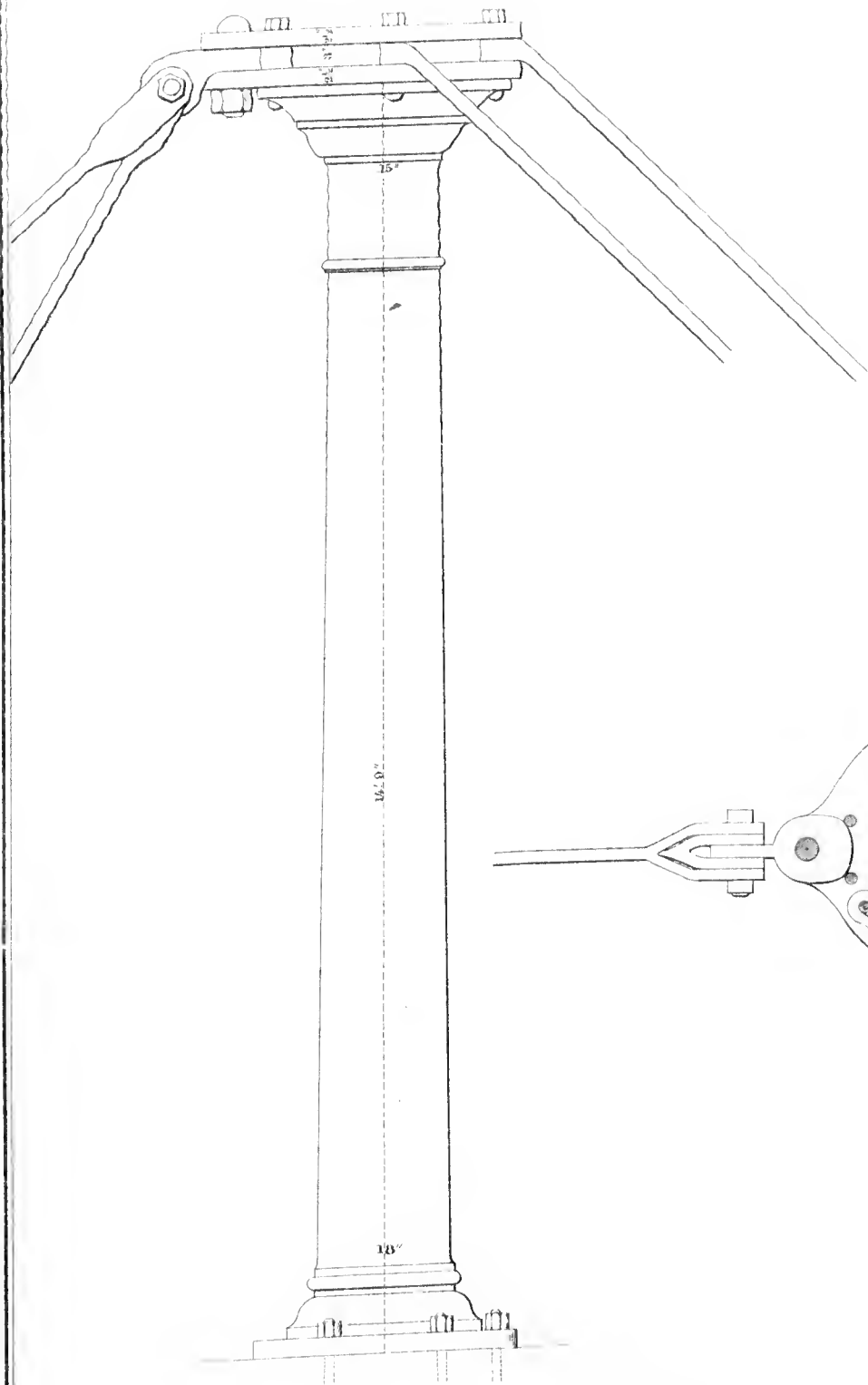
Back of Upper and Lower Recess.

Snubbing Post.



Washer for Suspension Rods.





Suspension Column.